Competing Public Values

Coping strategies in heavily regulated utility industries

Bauke Steenhuisen

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Motto: Guus Kuijer (2007) *Het doden van een mens*, Amsterdam: Athenaeum–Polak & Van Gennep, p. 73. ‘The Western culture looks so agile because it is produced by people who disagree among each other.’

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‘De westerse cultuur ziet er zo beweeglijk uit omdat zij wordt geproduceerd door mensen die het onderling oneens zijn.’

Guus Kuijer, *Het doden van een mens*, 2007

Contents

Acknowledgements

Three infrastructure companies welcomed us to study their organization. They allowed me, a green outsider, to closely investigate their large and complex organizational processes to learn how trade-offs come about between the many stakes in their environment. With hindsight, it can be said that these companies shared the two main concerns that led to this research.

The first concern relates to the rising wave of external interest in utility service operations. The introduction of liberalization and privatization across Europe ushered in a new era in utility provision. Yet this change also stirred up unrest and distrust among the general public, governmental institutions and the media. Infrastructure companies worry about this development and the upsurge of negative publicity about their enterprises. They experience the increase of external interference as more constraining and distracting than effective.

The second concern is an internal one. Managers desire a deeper understanding of the various perceptions within their organization of how trade-offs come about and how they should be made. The expectation is that greater cognizance of the differences between departments and employees will enable cultivation of shared values and more effective execution of new measures and projects.

The readiness of these companies to allow me to publish about their daily trade-offs was a fortunate starting point for this research. They invited me to delve into the farthest corners of their processes, guided largely by my own curiosity, and study them in ways usually closed off to scrutinizing outsiders. This openness is no light matter. Sensitive issues are laid bare, like the way companies treat public interests and their motives when dealing with regulatory policies. So, this thesis is not of interest solely to the infrastructure companies but also to the critical environment overseeing them, including regulators, inspectorates, ministries, boards and councils, interest groups and politicians.

This thesis addresses scientific audiences as well, ranging from the disciplines of public policy, economics to organizational sociology and ethnography. Though serving all of these audiences forced me to make many trade-offs, it did so in a productive way. The unremitting and necessary balancing – between scientific disciplines, between perspectives within and

across sectors, between practical use and scientific value – was key to a dynamic research process.

In practical terms, this balancing act meant maintaining constant interactions with a great many people with varied backgrounds. My encounters with some 150 practitioners were especially a driving force behind the research. I am highly obliged to them for their generous involvement, exposing me to their everyday practices and problems. Some grew committed to my progress, and helped me find my way in their organization. I am fortunate to have worked with Adriaan Roeleveld, Paul Morsch, Joke van Veen, Wim Ploem, Jurgen Mutsaers, Jan Veldhof and Nout Verhoeven, all of whom guided me with competence, criticism and trust.

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I take my hat off to Willemijn Dicke and Michel van Eeten. Both had tremendous impact on my development. My bloom would have awaited another spring if not for you, Willemijn, and your vigorous companionship and enduring attentiveness. Then, I truly am a lucky dog to have had Michel as my supervisor. To sketch his effect on me, let me recall a turbulent game of soccer

among colleagues in the yard of a Limburg hotel. In my team Michel was dribbling behind a swing, between two flower boxes, until he (finally) passed the ball, hard and true, right across the empty goal. In full speed myself, I saw no other option but to dive forward, kicking the ball between the two heaps of clothes we had as goalposts. During our substantive talks, your virtuoso dribbles and illuminating passes were as compelling and breathtaking, Michel. On top of that, I am grateful to Ernst ten Heuvelhof for his inimitable acuteness and open-hearted remarks on my work.

Outside Delft, many others contributed to my thoughts in this research. I dearly thank the scientists I met at various forums. In particular, I mention my meeting with Jenny Stewart at a conference of the International Research Society for Public Management (IRSPM), Hendrik Wagenaar and the whole group at the European Summer School in Policy Analysis (ESSPA), Barry Bozeman and Torben Beck Jørgensen at their Public Value Workshop, the Competition and Regulation in Networked Industries (CRNI) community and Koen Verhoest whom I met within the network of the European Consortium for Political Research (ECPR). In the final stage, Michelle Luijben was tremendously helpful in editing my writing and Mirko Noordegraaf, Jan Peters, Aad Veenman and Paul Schulman gave helpful feedback on my manuscript.

Finishing a PhD is known to be a long and winding, if not depressing, road. Looking back, I now see why it could be so, but not why it must be. Though the road metaphor may even understate the desolation, I find it hard to avoid the impression of a ceaseless tailwind wherever I flew. Through the years of hard work, many friends have heartened me, distracted me and walked with me. Thanks to all.

Thanks Anne and Janneke, my paranimfs, for your delight in accompanying me during the ceremony. Thanks Renze and Anke for being in Delft with me. Ultimately, Margreet and Dries, your resolute confidence has been as radiant as your heartfelt surprise: seeing me accomplishing what is now a fact.

Chapter 1 Introduction

Much has changed across the utility sectors of Western Europe since the 1990s. Most apparent are the many new organizations now managing the large infrastructure systems that are integral to the supply of utility services such as electricity and public transport. Service providers have been unbundled from infrastructure managers. Liberalization gave rise to many new market players and still does. At the same time, government withdrew itself from the delivery of utility services and established oversight bodies to watch over the new industries.

Utility services are vital for society, but these services require painful trade-offs, too, on norms and values held by the general public. Huge power pylons with high-voltage cables may disturb scenic landscapes. Heavy freight trains may thunder through the hearts of cities. Security measures may reduce the availability and quality of financial services provided through the Internet. Most good-hearted citizens subscribe to more reliable, secure, affordable and sustainable utility services. All these public values have a price, though, and they may be mutually exclusive.

End users of utility services find that many trade-offs are made for them. They cannot choose an electricity network that is cheaper but has more frequent service interruptions, for example. Drinking water companies provide no green drinking water alternative for consumers willing to pay more for protecting the environment. Train operating companies sell no exclusive train tickets that cost more but guarantee a higher level of safety.

Since liberalization, suspicion of the industries' trade-offs is rife among the public, fed by a constant stream of negative news. Price rises, large-scale service interruptions, disproportional salaries for company executives, accidents, inadequate safety provisions and poor customer service provoke widespread indignation. Train passengers, for instance, have experienced more frequent service disruptions than before the institutional changes.

The concern of decline for these vital services makes that utility industries are heavily regulated. Multiple oversight bodies stipulate and monitor many conditions and standards for the industries to comply with, such as tariff restrictions, quality standards, safety regulations and other requirements for many other objectives. When these precautions still do not

lead to the right result, oversight bodies are triggered to extend their interference and organize for extra checks-and-balances in the form of investigations, deliberations, interventions, new norms, warnings or direct penalties. Dutch electricity companies, for example, were recently fined millions for having delayed compensation payments to customers who had experienced service disruptions.

Obscure, however, are the actual effects of the current oversight system, given its many interventions to enforce the realization of a whole range of mutually exclusive public values within the industries. To assess these effects, the industries' performance figures are the ultimate criteria, but they may rise thanks to oversight and just as well apart from it, or even despite the constraints and transaction costs to parry oversight interventions. Moreover, now that more and more separate oversight bodies participate in the oversight regime, they increasingly run the risk of working at cross-purposes with one another, pushing their own objectives through at the expense of others. In that case, the common practice of oversight bodies to add more checks-and-balances, whenever they see a reason for it, may even trigger its own vicious circle independent of the industries' performance.

The question, thus, is how the currently fragmented oversight environment in utility sectors functions as a whole. The way oversight bodies contribute to utility provision is rather obscure, particularly in light of the industries' complex task to comply with many different oversight objectives that may inherently compete. This study examines the effects of oversight by verifying how trade-offs between public values take place within the industries.

1.1 PROTECTING PUBLIC VALUES WITH MORE AND MORE OVERSIGHT

Since the nineties, many new oversight bodies have been erected and assigned specific objectives with respect to the delivery of utility services. Sector-specific oversight bodies might be assigned to monitor quality aspects. Another oversight body might be assigned to oversee safety issues, besides the labor inspectorate. Yet various other oversight bodies might also hold partly overlapping authority to oversee safety and security aspects. There may be a price regulator, too. Public shareholders have also been introduced to the sector, though their exact role is still developing. The growing influence of European regulation is steadily developing within its own niche. Additionally, government has granted various consumer organizations a formal position to

watch over users' interests, for example, in the Dutch rail industry. Private certification and insurance agencies have seemed to gain influence as well. This development gives rise to disjointed oversight systems.

Additionally, many oversight institutions that already existed have become more active. In the Netherlands, at least, the increased role of the media in framing public debate on utility performance seem to have made parliament members increasingly active vis-à-vis the industry. Accordingly, multiple ministries then get involved in a variety of emerging issues, as do regional and local governments.

The result is an increasingly packed oversight environment surrounding the network-based utility industries (Figure 1.1). There even are many more stakeholders articulating private demands to be realized by these industries, but these oversight bodies generally consider their objectives in relation to public values.

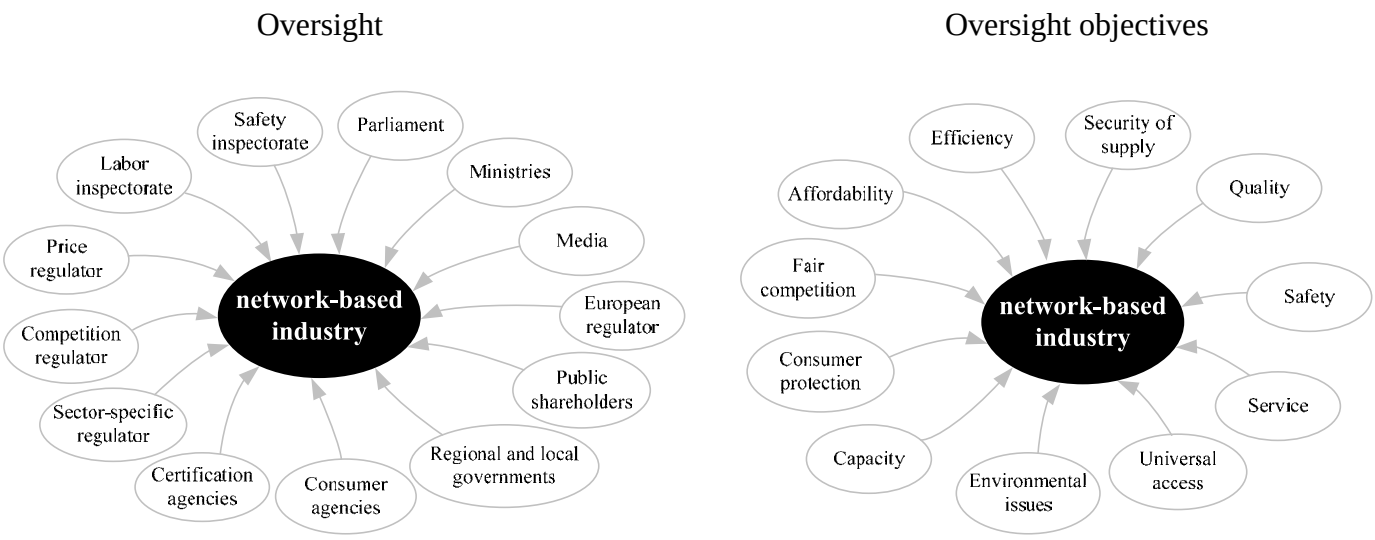

Figure 1.1: Oversight surrounding network-based utility industries for multiple objectives (simplified)

Most of the oversight objectives (Figure 1.1) have been pursued by the industries for years. For example, electricity supply should not be interrupted, passengers should reach their destination on time and nobody's life should be endangered in these processes. Since liberalization, there are many new objectives to pursue, too. Examples are the well-functioning of the market, transparency, customer appreciation of services and financial viability of

individual companies. On top of that, contemporary media urges companies to pursue a spotless reputation and to create a unique and reliable brand name. The amount of oversight objectives seems to have grown and the expectations generally are that the industries gradually improve their performance for most objectives every year.

Within the Dutch context, we discern the trend of growing oversight in other ways as well. To protect public values, oversight bodies are frequently spurred to grow but without straightforward restraints or incentives to shrink again. The Netherlands Competition Authority (NMa) is a notorious example. A lawmaker described this oversight body as "self-rising flour," as it saw its budgets almost quadrupled and the number of employees more than doubled from 2000 to 2005 (NRC 2005). Lawmakers have also been productive over the years. Jong and Herwijer (2004) signal that formal regulatory laws increased by 60% between 1980 and 2004 from 1,100 to 1,800 laws. A similar growth can be observed, for example, when comparing the numbers of inspections carried out by the Labor Inspectorate over time. This number grew from 96,000 to 138,000 hours per year between 2005 and 2009 (Arbodienst annual reports). Extensive governmental programs have been established to downsize the number of rules and oversight resources, for example the Committee of Administrative Burdens (Commissie Administratieve Lasten in Dutch) established in 1998.

Within an international context, Verhoest, Bouckaert and Peters (2007) attribute the institutional fragmentation of oversight to a broader development of horizontal and vertical specialization in line with the New Public Management. Many OECD countries reorganized multi-objective bureaucracies into many single-objective regulatory agencies. Other studies also identify growing oversight as a long-term development. Likewise, Christensen and Yesilkagit (2005) show that between 1950 and 2000 the number of boards in the Netherlands steadily rose by 143%, the number of separate agencies grew by 60% and the number of ministerial departments increased by 83%. Compared to countries with similar political systems like Denmark and Sweden, the growth of governmental institutions in the Netherlands stands out as high.

Power (1997) characterizes this trend of growing oversight as a syndrome of a 'distrusting society' with rituals of verification. Van Waarden (2006) terms it the 'control industry.' He estimates that 14% of the working population is devoted to checking up on others in the Netherlands, including

inspectors, auditors as well as teachers, lawyers and insurers. This makes the 'control industry' a larger employment sector than what is regularly referred to as industry.

A paradox rises from this tendency to protect public values with more and more oversight. The 'regulatory reform' in European utility sectors appears a paradoxical combination of both deregulation and reregulation at the same time, as Majone (1996, p. 2) described. Government has entrusted provision of utility services to the newly liberalized and unbundled industries, but these industries are not expected to strive towards public values of their own accord. The industries are inundated with suspicion. Whether this suspicion proves appropriate or not, our research interest is to see the effects of this increased external interference and how the industries deal with it.

1.2 OVERSIGHT EFFECTS WITHIN UTILITY INDUSTRIES

The effects of oversight are generally ill-understood and may be counter-productive (cf. Power 1997). This particularly holds true for the new oversight systems that have become more extensive and more disjointed since liberalization. In order to understand these effects, we empirically studied how network-based industries currently cope with multiple, potentially competing, oversight objectives simultaneously. We, therefore, transected the industries, by means of interviews and observations on everyday practices, following oversight objectives and their operationalized norms and protocols as they seeped down through the organizations to the daily delivery of services.

This method led to a focus on three organizational processes within the industries: planning, the operations and management. In the planning process, our respondents were strategic managers, staff members and planners who specified for trade-offs in advance. In the operational process, we interviewed and observed operational workers executing plans and dealing with conflicts in real time. In the management process, we interviewed middle managers about their daily interventions.

In all three processes, we asked our respondents about their objectives in daily work and how they realized them simultaneously. So, we did not focus on the 'key performance indicators' central to the formal feedback systems and oversight objectives. Instead, we asked more open questions to let respondents explain what *they* pursued in their daily work and how well they succeeded. Afterwards we compared these personal values with the public values

underlying oversight objectives. Analyzing this data reveals many tensions between values and provides insights in the organizational coping behavior in response to these tensions

1.3 THESIS OUTLINE

This thesis describes how utility industries cope with competing public values. The ultimate concern is how trade-offs affect the daily delivery of services to end users and the public values underlying these services. When public values get traded-off against other interests of arguably less importance, the question is how oversight interventions can effectively correct the priorities of the coping industries.

In Chapter 2, we outline the common theoretical understanding of effective oversight in principal-agent relationships. Conflicts *between* the objectives of multiple oversight bodies, however, remain on the sidelines in this understanding. Literature on the 'multiple principals problem' fills this gap by adding how interacting oversight incentives put 'agents' in difficult positions. Literature on 'coping strategies' help to explicate organizational behavior in response to value conflicts. A literature review yielded a wide variety of coping behavior. We synthesized this variety in a framework to analyze coping systematically and to reveal underlying patterns.

Chapter 3 describes our inductive research approach. The case selection is accounted for. We studied three Dutch cases: an electricity distribution company, a rail infrastructure manager and a train operating company. We traversed each network-based organization from the strategic top to operations with interviews and observation periods on various sites. In Chapter 4, these organizations and their oversight environment are further introduced. Three lists of public values are derived from the oversight objectives each organization deals with.

Then, the empirical core of the thesis reports on our exploration of conflicts and coping behavior. The findings spread over four chapters, focusing on similar coping mechanisms across the three case studies. Chapter 5 opens with a varied list of value conflicts that remain unrecognized. The organizations structurally fail to recognize value conflicts. The rest of the thesis explains this finding and makes sense of its implications.

Chapter 6 first describes how the industries systematically plan trade-offs in advance. Three central planning systems are discussed as well as various

other planning activities besides. Then, we explain why many value conflicts appear hard to address and easy to postpone in this phase. The exclusive attention for single values and the many specialized tasks and units seem to pave the way for displacing difficult trade-off dilemmas to the operations.

Chapter 7 describes the execution of plans and instructions. Many value conflicts re-appear in real time operational processes, but with a significant risk of undeliberate value disposal. We systematically describe how workers in the field, in the train and in control rooms cope. Their strategies appear highly diverse and, at times, opposed to their protocols. As the number of conflicts rises and the pressure to comply increases, the more sensible coping practices seem to transform into more blunt routines, tossing conflicts around, with less deliberate outcomes. A pattern emerges rendering particular public values, such as safety and reliability, extra vulnerable.

In Chapter 8 we discuss how middle managers encounter coping pressures in formal feedback systems and in face-to-face feedback from operational workers. Even afterwards, managers generally neither recognize nor support operational coping practices. Instead, the main managerial response is to add checks-and-balances for repressed values. The feedback managers receive seems to reinforce their conflict-avoiding strategies.

In Chapter 9, we zoom out and reflect on our findings from the perspective of the oversight environment. We took the opportunity to discuss our findings with several representatives of oversight bodies. We learnt that the actual coping strategies within utility industries are generally not considered a concern to oversight. This stance seems problematic, though, given the actual influence of oversight on the coping strategies within the industries. We identify three adverse mechanisms.

Two chapters conclude the thesis. Chapter 10 summarizes our empirical findings. The tendency to leave value conflicts unrecognized seems to follow from the dominant coping strategy, in all organizational processes and across the sectors studied, not to balance competing values but to protect values against conflicts. As a consequence, however, many conflicts automatically displace to the operations where trade-offs structurally occur unmanaged. This notion on coping behavior turns common assumptions underlying the effectiveness of oversight upside down.

Subsequently, in Chapter 11, we pinpoint the problematic implications of our findings. We explain the paradox of why fallible coping strategies can still be surprisingly effective in terms of performance. Our argument leads to a

defense of the current functioning of utility sectors, but we, too, comment on what it takes to sustain sensible coping behavior for the long term.

In sum, the potentially harmful growth of oversight appears relatively limited in terms of performance effects. Many value conflicts are eventually neutralized in the ‘capillaries’ of network-based organizations, particularly in the operational processes. But this ability to cope with inconsistent oversight is instable. Circumventing some regulations and loose connections between operations and the institutional environment currently enable these industries to cope. Detached from the multi-value complexity of infrastructure operations, the new oversight systems fundamentally cannot reconcile these coping practices with their task to secure their assigned objectives. But the dilemma of oversight is that “the loss of political control is the prerequisite of effective performance” (Miller 2005, p. 222).

Chapter 2 Theory: coping with value conflict

The main research question reads: *How do network-based utility organizations deal with multiple, potentially competing, oversight objectives.* A range of scientific disciplines relates to this question. The current study particularly combines insights from economics, public management and organizational behavior.

This chapter outlines our theoretical framework in five steps. First, oversight objectives are linked to the broader concept 'public values.' Second, we discuss the theoretical paradox that trade-offs are considered inevitable but impossible at the same time. Third, these trade-offs are contextualized in the relationship between governments and utility industries in a principal-agent framework. Fourth, studies on the 'multiple principals problem' draw attention to the more complex coordination issues among multiple oversight bodies. Fifth and finally, we review literature on 'coping' and build a framework to analyze organizational behavior in the face of conflict.

2.1 OVERSIGHT OBJECTIVES AND PUBLIC VALUES

Since government withdrew from the actual provision of utility services, many lists of public values, or public task related values, have been articulated and operationalized in various policy documents and research reports (e.g. WRR 2008, V&W and VROM 2004, EC 2004, Raad voor Verkeer en Waterstaat and Algemene Energieraad 2003, EZ 2003, WRR 2000). These lists articulate aspects that ought to be safeguarded in the public interest. Most of these values are institutionalized via democratic means in laws, regulations and objectives for multiple oversight bodies.

In this context, we define oversight as the involvement in monitoring and interfering when necessary to protect those objectives that concern the public interest (cf. DeMarzo, Fishman and Hagerty 2005, Beyer 1990, p. 7–8, MacCubbins and Schwartz 1984). Oversight may imply different regulatory tasks such as specifying norms, applying rules to individual cases, verifying rule compliance and exerting pressure to enforce compliance (Hood *et al.* 2001). Though oversight mainly involves public institutions, this is not

necessarily so (Scott 2002). Next, the term 'oversight,' in contrast to the term 'regulation,' connotes various degrees of formality these intervening forces can have (Midwinter and McGarvey 2001) as well as the many different task perceptions regulators may uphold (Hood *et al.* 1999, p. 33). In other words, the group of oversight bodies intervening and exerting pressure in infrastructure industries is much broader and varied than stricter definitions of regulation describe.

Thus, we start our study of public values with a set of explicitly formalized oversight objectives for the utility industries to comply with. For practical reasons, oversight objectives tend to be narrowly defined and procedural. We take them as cues to track public values. This brings us a set of underlying, more substantial and output-related type of values. Examples are safety, universal service, quality and reliability of services, affordability, protection of captive consumers and sustainability (cf. De Bruijn and Dicke 2006, Finger 2006, Héretier 2002). Full lists of values with respect to our case studies are presented in Chapter 4.

So, eventually, we are interested in the public values underlying the oversight objectives operationalized in norms and tasks. A main theme in public administration, as well as in many other disciplines, is the inherent tension between values and their deduced norms (cf. De Bruijn 2007, Bothe and Meier 2000, Scott 1998). These tensions often incite oversight bodies to specify norms, more clearly and in smaller details, but the tighter the tensions become as more precise norms lose their flexibility in practice. We use the concept 'public values' to acknowledge these tensions as well as the constant public debate to define and redefine the public interest (cf. Veeneman, Dicke and De Bruijne 2009, Bozeman 2007, De Bruijn and Dicke 2006). Then, we use the operationalization in oversight objectives to (temporarily) escape the intricacy, and artificiality, of sharply defining what is a public values and what is not. The empirical identification of public values is further described in Chapter 3.

2.2 TRADE-OFFS: BOTH UNAVOIDABLE AND IMPOSSIBLE?

Public values are inherently competing (Dicke and De Bruijn 2006). Value conflicts are generally regarded unavoidable when complex organizations provide for multiple societal values (cf. Beck Jorgensen 2006, Wagenaar 2002, Viscusi 1992, Maynard-Moody and McClintock 1987, p. 135, Rein 1976, p. 62,

Arrow 1950). This theoretical unavoidability of value conflict is also claimed in philosophical literature of Hampshire (1983) and Berlin (1988) and in Stone's (1997) descriptions of political life, as exemplified by Wagenaar (2002, p. 126). Theobald and Nickolson-Crotty (2005) confirmed in an empirical study of nearly 600 public bureaucracies that structural changes designed to improve performance on one goal hinder performance on other goals.

Though conflicts are inevitable, they tend to remain intangible until values are concretized in norms. According to Lindblom (1959, p. 82), the only sensible understanding of priorities among values emerges in concrete choice situations. "Value conflict is always a problem of practice," according to Thacher and Rein (2004, p. 461). So, despite the inherent tension between values and norms, these operationalizations seem essential to understand value conflict.

Weiner (1998) discusses several examples of 'norm clashes' in humanitarian crises. A conflict emerges, for example, when the protection of refugees in a war situation simultaneously provides assistance to human rights violators (p. 437). Following numerous examples, Weiner arrives at three exploratory features shared by trade-off dilemmas. First, some kind of institution is involved in the dilemma. Second, there is no fully satisfactory alternative or solution. Third, "each situation is so highly contextualized that one would want considerable information before making a choice" (p. 440).

In concrete choice situations, however, Lindblom (1959) sketches the impracticability of weighing each alternative for all consequences and all relevant values. But even if decision makers are fully informed, the capability to rank values cannot be taken for granted. Psychological studies have found many biases as people compare potential gains and costs since Kahneman and Tversky (1979). Other studies showed that decision makers often avoid these comparisons, using shortcuts that solve tensions of conflicting values by "eliminating the need for direct comparisons" (Tetlock 2000, p. 245). Thacher and Rein (2004) described that decision makers "remain agnostic about commensurability" (p. 481) in order to resolve value conflicts without balancing gains and costs. Jones (2006) explains that "because of limited attention spans, people generally [must] work on goals sequentially" (p. 399).

Various scholars even argue that it is completely impossible to compare values, because of their intrinsic nature. Intrinsic values possess an end use independent of quantitative comparison or substitution with other values (Bozeman 2007, p. 126–9). Therefore, intrinsic values are regarded as

fundamentally incommensurate, un-analyzable and, thus, incomparable (cf. Thacher 2001, Jensen 2001, Chang 1997, Sunstein 1994, Hook 1966).

Indeed, weighing multiple intrinsic values in terms of an overarching value constitutes an ungrateful and capricious challenge. Debates on pricing human lives or nature exemplify this. In psychological research, Tetlock (2000) observes that painful trade-offs appear "just too cognitively complex, emotionally stressful, and socially awkward for people to manage them effectively" (p. 239). As Barry Bozeman (2007, p. 121) puts it:

> *"Of course, values often conflict. The rub is when intrinsic values conflict."*

At the same time, Tetlock (2000) shows the opposite in the context of microeconomics. Indeed, people engage in trade-offs all the time, resulting in countless daily choices. Espeland and Stevens (1998) explain 'commensuration' as a basic feature of social life in which various qualities are transformed into comparable quantities. On a societal level, trade-offs among public values constantly arise as well in package deals, market equilibriums and government budget allocations.

Paradoxically, trade-offs between values seem both a philosophical impossibility and an inevitable daily practice. "Incommensurables preclude trade-offs" (*ibid.*, p. 326), but value conflicts are inevitable. At least two philosophical counterarguments support the inevitable practice of comparing values (Chang 1997, p. 16, 38). A first holds that values are in essence comparable, since every value is intuitively expressed on an abstract scale from bad to good. Since all values link to that single scale, they can be regarded as comparable. A second argument, against the incomparability of values, is the perspective that there is no lack of possible comparisons. The challenge is not the comparison in itself, but finding a comparison that is not too vague and that enjoys support. Tetlock (2000, p. 262) takes a middle ground on this paradox:

> *"People appear neither to be hopelessly muddled incompetents when it comes to trade-offs … nor to be adroit practitioners of multivariate calculus who can perform conditional optimization problems in their sleep."*

The broad space left open between these opposing views begs for empirical study. The inevitability of value conflicts seems to require trade-offs, but explicit balancing of competing values seems too narrow a concept. Therefore,

Fiske and Tetlock (1997) introduced the term ‘implicit trade-offs.’ Note that Thacher and Rein (2004) would consider such a concept a contradiction in terms, since they strictly use the term trade-off for an explicit way to “balance the gains to one value against the costs to others: so much for safety and so much for liberty, so much for equality and so much for self-reliance, so much for refugee assistance and so much for peace.”

Next, the principal-agent framework contextualizes trade-offs among public values in the relation between infrastructure companies and their oversight environment.

2.3 THE CONFLICT IN PRINCIPAL-AGENT THINKING

The principal-agent framework provides a basic understanding of effective oversight, safeguarding public values in the context of privatization and liberalization. An oversight body acts as a principal and allows infrastructure companies, being agents, to earn a profit as long as they comply with the principal’s conditions (cf. Dixit 2002, Broadbent, Dietrich and Laughlin 1996, Mitnick 1975). The Dutch energy regulator even seems to have copied this framework literally, considering it to be ideal when the incentives for an agent to maximize profits exactly match the principal’s objectives (Dte 2002).

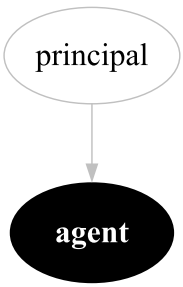

Figure 2.1: The principal-agent relationship

The basic principal-agent model (Figure 2.1) has countless applicants in various bodies of literature. The model is used in law, finance, accounting and economics (Waterman and Meier 1998, p. 173), particularly in the field of neo-institutional economics (Verhoest 2002, p. 48). Social scientists have adopted this originally economic framework as well (Mitnick 1992), though not without criticisms (cf. Bottom *et al*. 2006, Perrow 1986, p. 224). The principal-agent

model is used in a regulatory as well as in an organizational context between managers and their subordinates.

Central to principal-agent thinking is a conflict between the 'agent objective function' and the 'principal objective function' (Laffont and Martimort 2002). The fixed presumption is that the principal's objectives, in our case representing 'public values,' need to be protected against the agent's objectives, mostly referred to as 'private interests.' These private interests, however, are more often assumed than empirically studied. A commonly used worst-case conceptualization of the agent's objective function is to generate as much money as possible, with the agent characterized as an amoral calculator. Unlike casually conflicting norms, this goal conflict is perceived to be omnipresent, as long as the agent's objectives differ from the principal's objectives.

This goal conflict between principals and agents is considered an inevitable risk for the principal. "Because there is goal conflict between principals and agents, agents have the incentive to shirk" (Waterman and Meier 1998, p. 177). Thus, in order to prevent the erosion of public values, principal-agent theory prescribes oversight bodies to counterbalance this goal conflict with sufficient incentives.

The possibilities for agents to shirk on principal's incentives are rather numerous though. In advance, the agent may seduce the principal to agree on certain incentives while ***hiding*** knowledge of the incentives' actual effects. This creates a loss of control over the agent, known as 'adverse selection.' Afterwards, the agent may be able to ***hide*** the actions and decisions it undertook in response to the incentives. This creates a loss of control as well, known as 'moral hazard' (Laffont and Martimort 2002, p. 3 and 145). So, a shirking agent may circumvent a principal's incentives. Agents might display leisure shirking, political shirking or sabotage (Brehm and Gates 1997). An agent may manipulate information, displace goals (Van Thiel 2000, p. 55–6) or cheat by cutting corners, lying and biasing samples (Bothe and Meier 2000).

Moreover, the pursuit for effective incentives is a constant dilemma because of the inherent tension between values and norms. Broad qualitative descriptions of principal's objectives generally provide valid but weak incentives. Narrowing incentives into quantified norms and unambiguous performance standards increases their impact but prompts more goal displacement.

So, the principal-agent framework offers a basic understanding of the effects of oversight. Conflicts within the agent may thwart oversight, because agents deal with them in secrecy. Effective oversight, therefore, basically needs to condition agents with incentives that align the priorities of agents with the priorities of the principal, according to this theory.

2.4 THE MULTIPLE PRINCIPALS PROBLEM

Traditionally, most principal-agent studies focused on the relation between a single principal and a single agent (Moe 1987, p. 482). In doing so, these studies isolate a very specific value conflict. A common reality, however, is that an agent serves many masters with conflicting interests (Figure 2.2). As Shapiro (2005, p. 278) notes:

> *"Only the rare agent has the luxury of aligning her interests with a single principal. Conflict of interest is hardly about shirking or opportunism with guile; it is about wrenching choices among the legitimate interests of multiple principals by agents who cannot extricate themselves from acting for so many."*

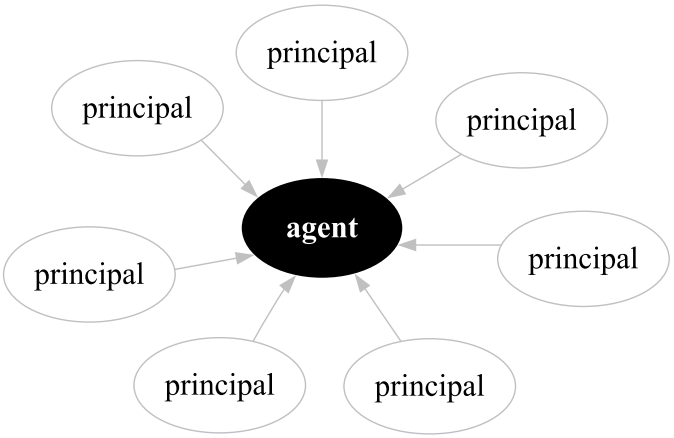

Figure 2.2: The multiple principals problem

The basic principal-agent model is limited in that it assumes that "principal A by hiring agent B does not infringe on the interests of principal C who also hires agent B" (Waterman and Meier 1998, p. 178). Therefore, the principal-agent model "cannot explain actual bureaucratic behavior because it has no

way to establish any hierarchical relationships among the principals" (*ibid.,* p. 180).

Conventional principal-agent studies frame the deviations of agents from the values and objectives of principals as 'shirking', but studies on this so-called 'multiple principals problem' reconsider this evidence (cf. Black 2008, Pandy and Wright 2006, p. 513, Jordan 2006, Mattli and Büthe 2005, Miller 2005, Dixit 2002, Waterman and Meier 1998, Martimort 1996). These studies identified conflicts between incentives from multiple principals emerging within agents. As such, the multiple principals problem offers an alternative explanation for why a principal may lose control over an agent. Multiple principals may have overlapping interests but also competing interests in the absence of an imposed hierarchy. They may hold similar but also diverging priorities. In the latter case, competing principals may even act as opposed maximizers in a fragmentized regulatory system and hold each other in check (Scott 2000, p. 55).

The outcomes of interacting incentives may not always be predictable. Interacting incentives for the same objective do not necessarily add up but may also 'crowd out' each other (Miller and Whitford 2002, p. 252). The classic example is that financial incentives may undermine the intrinsic motivation of agents, resulting in lower productivity (Akelof and Dickens 1982). Similar conclusions are drawn by Francois (2000, p. 292), whose economic model predicts that high-powered incentives crowd out the public service motivation of bureaucrats, which raises costs.

The multiple principals problem has deep roots in scientific literature and finds application in many research fields. At an early stage, Simon (1976) wrote about emerging courses of action within organizations simultaneously satisfying multiple criteria. Scholars followed to ways in which individual bureaucrats, like police officers, social workers and forest rangers, respond to their inconsistent environment of multiple demands (March 1994, Wildavksy 1989, Wilson 1989, p. 34 and 45–8, Lipsky 1980, Kaufman 1960).

In the field of implementation studies, scholars describe settings with multiple jurisdictions (Elmore 1985, p. 57) and goal multiplicity (O'Toole 1989). Likewise, scholars in the field of public administration encounter 'polylemma' or 'multilemma' consisting of vague and incompatible policy objectives and also note the reversibility and changeability of priorities (Grunow 1986, Dunsire 1986, p. 337).

In the field of economics and econometric studies, Bernheim and Whinston (1986, p. 923) formulated an amendment to the principal-agent framework called 'common agency,' describing situations when an agent's action affects several principals whose preferences conflict. Later studies applied this common agency framework to a range of firms, particularly in international contexts (e.g. Lyne, Nielson and Tierney 2006, Bond and Gresik 1996). Next are the mathematical modeling approaches by Martimort and Stole (2002) and a multiple principals theory by Spiller (1990). In the political sciences, modeling is less common. An exception is Gailmard (2009) who modeled the multiple principals setting for bureaucrats as a collective action problem.

Findings of this literature concerns two contexts. It draws on studies of multiple principals problems in a regulatory context and in an organizational context. Their findings are discussed below.

REGULATORY CONTEXT: MORE SHIRKING BUT LESS VOLUNTARY

One body of public management literature describes the effects of multiple principals in regulatory relations. Moe (1987) reveals that conflicting incentives lead to obligatory trade-offs within agents while providing impromptu opportunities for the agent to maximize its own self-interest (p. 482). When conflicts among principals' incentives are unanticipated, hidden effects might already be in play before the agent acts.

Mitnick (1992) and Waterman and Meier (1998) show how agents come to prioritize among multiple principals in a regulatory context. Then, what at first seems to be shirking behavior appears to be caused by competing principals. Waterman and Meier assert that agents can be automatically forced to act as a political institution in a multilemma (*ibid*., p. 180). Mitnick (1992) hypothesizes apolitical factors that might influence the agent's behavior, such as to favor the principal first encountered, the most cognitively salient incentive, the easiest objective to perceive and understand, the most standardized interests or the simplest ones (p. 15).

Multiple principals problems provide opportunities for more advanced shirking behavior as well. Coen (2005) describes the multiple institutional regimes in the German telecommunications sector as providing "too many opportunities for regulatory gaming between firms, institutions, and government" (p. 384). An often-mentioned strategy of agents, though less often observed, is to play principals off against one another (Verhoest 2002, p. 75,

Wood and Waterman 1994, Moe 1987). Next, agents might strategically use information asymmetry in a setting of multiple principals (Miller 2005, p. 211). This may be particularly true in the context of young regimes "where norms and relationships are still being defined" (Coen 2005, p. 394).

A situation of multiple principals does not inevitably lead to problems. Though policymakers commonly try to reduce the conflicts and overlapping responsibilities in a 'multiple accountability regime,' Schillemans (2007) and Scott (2000) praise the emergence of dispersed governance regimes for their inherent conflicts and flexible redundancy. Within the organizational context of managing professionals, De Bruijn (2007) suggests that multiple opportunities to be accountable may enable justice to be done to "the complexity and multiple-value nature of public products" (p. 81). We recognize that multiple principals are not necessarily problematic. Competing accountability systems might affect one another positively as well as negatively.

ORGANIZATIONAL CONTEXT: MULTIPLE TYPES OF CONFLICT WITHIN AGENTS

Another body of literature on the multiple principals problem focuses on the effects and decision behavior within agents. Typically, the object of study is an individual worker or manager (Dixit 2002, Dunsire 1986). These organizational perspectives bring to light a multiplicity of types of value conflict.

In organizational studies, the principal-agent terminology is generally less used, because studies that conceptualize the practice of 'serving many masters' do not always employ incentives as the basic element to describe conflicts. Maynard-Moody and Musheno (2003) discard the idea of a chain of principal-agent relations as a valid description of street-level bureaucrats. These researchers replace incentives with 'social norms' as the basic element explaining behavior at the street level (p. 159). Likewise, Brehm and Gates (1997, p. 48) have criticism, but broaden the concept of incentives to "simple heuristics which are extrinsic to the communication" between managers and street-level bureaucrats (p. 48). Organizational studies commonly address problems of multiple principals using other terms, such as cross-pressures, accountability disorders, inconsistent environments or competing control systems.

Romzek and Ingraham (2000) explore the case of a military plane crash centering on how individuals operated "within a web of accountability relationships that represent several different behavioral standards against which their performance can be judged" (p. 242). The authors distinguish four sources

of control. External sources are political and legal. Internal sources are hierarchical and professional. As a result of these sources of control, professionals "can get caught between the cross pressures of initiative and command" (*ibid.*, p. 249), ruling out a 'right choice' in situations of the most intense kind. Following on the work of Romzek and Ingraham, Kim (2005) finds a perverse interaction pattern of competing values. Hierarchical accountability seems to damage professional and political accountability, jeopardizing organizational effectiveness in the end (p. 145).

Koppell (2005) distinguishes formal and informal authority and introduces a new typology for accountability of an individual or organization. He describes the competing accountability dimensions 'transparency,' 'liability,' 'controllability,' 'responsibility' and 'responsiveness.' The multiple pressures possibly force organizations into "a bureaucratic version of Twister" leading to a "multiple accountability disorder" (p. 99). Koppell argues that, in response to these disorders, leaders may "cast about" and "take advantage of the uncertainty to justify questionable behavior" as long as uncertainty remains about how to judge the organization (p. 105).

INTERIM CONCLUSION

A multiple principals perspective opens up a much richer way of understanding how all kinds of trade-offs may occur within agents, compared to the traditional principal-agent model. On one hand, this broader framework recognizes that in cases of non-compliance, the agent may be tricked into inevitable failure without a deliberate choice to shirk when responding to interacting incentives. On the other hand, competing incentives provide agents extra opportunities to shirk by playing principals off against each other. Combined with the traditional principal-agent model, this reveals an inextricable dilemma because more as well as fewer incentives seem to enable agents to shirk.

A limitation of studies on the multiple principals problem is the difficulty to understand agent behavior. What actually motivates agents not to comply when dealing with interacting incentives tends to remain conceptual and speculative instead of substantially worked out. Therefore, the next section complements this mainly economic perspective with organizational theory.

2.5 COPING BEHAVIOR

A newly composed body of literature on 'coping behavior' provides a general understanding of how agents may respond to the multiple principals problem. We define coping as a response to competing values that takes form in the actions and decisions. It covers a broad range of organizational behavior in the tradition of March (1994) in which organizations deal with "confusing, inconsistent environments" (p. 193).

First, a literature review on coping yields a wide variety of coping strategies to guide this study's empirical exploration of utility industries. Second, this variety, insofar as it is relevant to organizational behavior, is systematized in two analytical dichotomies to reveal underlying mechanisms of coping.

LITERATURE REVIEW ON COPING

Many research fields have described coping behavior. This study used the *ISI Web of Knowledge* citation index to search for articles about coping between 1 January 1999 and 10 March 2008. The search resulted in tens of thousands of scientific articles. The majority of these were published in psychology and psychiatry journals about people coping with mental stress or problems. The concept appears particularly appealing to these scientific disciplines. Typical realms of coping are everyday behavior, emotions, religion and sex.

Narrowing the search to fields relevant to organizational behavior, as well as sociology, political science and public administration, resulted in 500 articles on coping. A scan of these articles, including their main references, revealed common features of coping across frameworks, journals and research fields.

In this rough selection, coping appears generally associated with strategies. Related concepts are coping resources, coping scales, coping mechanisms and coping styles. Most strategies deal with uncertainty. Recurring features of coping are the acceptance of losses and the inseparability of advantages and disadvantages. Other contexts of coping strategies are stress, change, cognitive dissonance, cross-cultural encounters, institutional fragmentation, non-measurable outcomes, complexity and, last but not least, multiple and rival objectives or satisfactions. We further zoom in on this latter type of coping in the realms of conflicts.

COPING RESPONSES IN ORGANIZATIONS

Studies of 'street-level bureaucrats' were among the first to describe the many coping responses in the public sector. At the operational level of organizations, these bureaucrats appear compelled to deal with competing interests amongst policymakers, other bureaucrats and customers. Lipsky (1980) introduced 'creaming off,' 'rationing,' 'bias,' 'routinization,' 'triage' and other discretionary judgments as coping responses of individuals on the operational front lines.

Next, Brunsson (1989), from the field of organizational behavior, contributed many new coping strategies. He particularly elaborated on the ability and counterintuitive desirability of organizations to be 'hypocrite,' as he calls it. Institutionalizing hypocrisy is a way to deal with an inconsistent environment of demands. Brunsson distinguishes various 'decoupling' techniques, in time, topic, environment and organizational unit, to enable hypocrisy. Decoupling allows an organization to satisfy multiple demands in separate domains which would cause conflict if the domains were fully connected. This looseness creates a capacity to cope with value conflicts.

Brunsson mentions two other, more general, forms of decoupling: 'separating the leaders from those led' and 'decoupling talk, decisions, actions and products.' The first, separation of leaders and led, creates a dual basis for legitimacy: that in external relations and that in the production process. In the latter separation, talk might satisfy one demand, while a decision might satisfy another. Action may satisfy a third, while products may satisfy a fourth demand. All four demands may be (temporarily) satisfied in this way without addressing inconsistencies between the demands. March (1994) agrees this is often the case. Decisions "seem unconnected to actions, yesterday's actions unconnected to today's actions, justifications unconnected to decisions" (p. 192–3). March (*ibid.*, p. 198) further describes the interplay of talk and action:

> *"Talk and action are loosely coupled, because talk tends to deal with principles one at a time and action tends to deal with many principles simultaneously but only in a specific limited situation. Talk achieves clarity by ignoring the complications of specific contexts. It reminds decision participants of their beliefs. Action achieves clarity by ignoring its implications for contradictory beliefs. It sustains the beliefs but bends them to meet the exigencies of action. As a result, some things that are easily said are not done. Other things can be easily done but not easily said."*

As alternative coping strategies, Brunsson suggests to find a less inconsistent environment or to make the environment more consistent. In the first case, organizations may look for niches with fewer competing norms and adjust their portfolio to these niches. In the second case, organizations may also cope by emphasizing shared norms among the relevant external groups or by establishing a strong coalition among those with shared norms.

Finally, Brunsson also describes a ritualistic coping strategy. Upholding 'myths' can enable organizations to survive in an inconsistent environment. Organizations, for example, are eager to show that they are 'altruistic,' 'in control' and 'rational' to be granted credit and trust by their environment. Double talk or doublespeak (cf. Dörner 1996, p. 68) may provide a similar way out of a value conflict by means of symbolism. Dörner uses the example of a decision maker who initiates 'voluntary conscription,' unifying two incompatible realities in one concept. 'A little bit pregnant' may also serve as an example.

A variation on the theme of decoupling is found in the research of Lawton, McKevitt and Millar (2000). They present two coping strategies that sustain loose connections between conflicting policies and practice. First, certain managers may absorb uncertainties and inconsistencies among multiple stakeholder interests. These managers act as 'boundary spanners' taking "positions that link two or more systems whose goals and expectations are at least partially conflicting" (Steadman 1992, p. 75). These boundary spanners reconcile "external scrutiny" with "realistic measures that reflect their experience," although they are incompatible with one another (Lawton ***et al.*** 2000, p. 19).

Second, the authors (***ibid.***) explain why "organizations survive despite evidence that they are not meeting formal targets and that key stakeholders do not always buy into formal performance management" (p. 19). They argued that a 'logic of confidence' works as a loose connection between the organization and its environment and helps organizations to cope.

From behavioral decision theory, relevant to organizational theory, "a set of individual and institutional coping strategies" has been identified "designed to defuse potential outrage, including concealment, obfuscation, decision-avoidance and demagoguery" (Fiske and Tetlock 1997, p. 288). Secrecy and opacity of decision-making processes is a strategy commonly applied to conceal trade-offs. 'Rhetorical obfuscation' can take the form of "smokescreens such as vague appeals to shared values" (***ibid.)*** when a trade-off

is taboo or when there exist political disincentives to discuss it openly. Next, ‘buck-passing’ and ‘procrastination’ are coping strategies by means of decision avoidance.

Next, ‘demagoguery’ describes the politically problematic side of trade-offs. Limiting resources spent on personal safety might be politically lethal as well as inevitable. The opposition tries to make explicit the taboo trade-offs that political leaders must make. But when the opposition is successful and political leaders are not re-elected, opposition politicians reap the rewards of sacrifices made by their predecessors, after which the cycle repeats itself.

A common coping mechanism to escape this constant ideological rotation is ‘depoliticizing’ an issue. In another article on coping strategies, Tetlock (2000) further mentions strategies of ‘bolstering,’ ‘sacralizing’ values, ‘lexicographic strategies’ and ‘spreading-of-the-alternatives.’ This last strategy means to play down the to-be-slighted value and to play up the strengths of the to-be-accepted value. A lexicographic strategy means to choose among alternatives by focusing on the highest gain for one goal and to ignore the rest.

Within the research field of street-level bureaucrats, Maynard-Moody and Musheno (2003) describe as a coping strategy March’s concept of ‘enacting identity,’ having multiple identities. According to these authors, ‘front line workers’ enact identities in daily situations of competing values. They find occupations or professions to be a structural component of these identities. The occupational identity is two-sided, according to the authors. On one hand, it serves as a cover-up for wrongdoing, even criminal wrongdoing. On the other hand, it reinforces professional norms, potentially complementing managerial output criteria.

Most of the scholars discussed so far present coping as a response. Nielsen (2006), however, argues that Lipsky and followers unnecessarily portray coping behavior as a required form of self-defense to reduce stress and avoid confrontations. Nielsen argues for a more serious look at what actually motivates coping. She proposes that street-level bureaucrats are not necessarily compelled to cope but also enticed to cope. Interacting values do not necessarily compete but can also converge in functional ways, offering win-win situations, foreseeing opportunities to optimize and developing valuable expertise.

Inductively, by reviewing literature in various policy domains, Thacher and Rein (2004) draw up a repertoire of coping strategies. They named them firewalls, casuistry and cycling. First, firewalls arise as organizations “establish

and sustain multiple institutions committed to different values, walling off each institution from the responsibilities of others" (p. 463). Stewart (2006), following Thacher and Rein, further explains that "structural separation allows value conflict to be accommodated, but it also produces stresses and tensions elsewhere in the system" (p. 187).

The second type, casuistry, is a case-by-case approach in response to particular conflict situations. Casuistry is the consequence of eschewing general decisions or decoupling competing values (Thacher and Rein 2004, p. 458). This mechanism is closely related to triage in Lipsky's (1980) terms or the 'repertoire of actions and routines' described by March (1994). Thacher and Rein (2004) argue that, in response to a conflict, it is "often difficult and simply unwise" to "decide how much each value is worth in terms of an overarching master value" (p. 479) Instead, "more situated judgments about what should be done (e.g., drawing on analogies to previous cases) may be justifiable even if one cannot definitively state the reasons that justify these judgments" (***ibid.***).

The third type, cycling, means to decouple competing values over time and pay 'sequential attention' to competing values. Cycling typically does not defuse the value conflict, but postpones dilemmas to the future. Multiple values can be realized separately, each in its own period, 'cycling' over time.

Cycling is often associated with high transaction costs, but it can be a productive strategy. Cycling may allow organizations "to take advantage of variations in attentions" (March 1994, p. 194), to temporarily reduce the multiplicity of values (Thacher and Rein 2004, p. 465) and "to facilitate the invention of new strategies" over time (***ibid.***, p. 463). When agents master cycling, they can make progress towards both values, practicing the art of 'spiraling' (***ibid.***, p. 267).

Hickson ***et al.*** (1986) associate cycling with Kingdon's model of streams at the strategic top of organizations. "Streams of problems appear in organizations … so that life at the top can be a continual round of switching from one problem to the next" (p. 10). Cycling is not necessarily a deliberate strategy. According to Hickson ***et al.*** (1986, p. 15), competing values may form such a complex multitude that cycling is inevitable.

Thacher and Rein (2004) recognize that their strategies are far from an exhaustive typology. They name two other strategies. Policy actors may 'define floors,' which are minimum levels of attention to be paid to values, instead of constantly maximizing multiple competing values. Another strategy is to "suppress consideration of the issue that gives rise to the conflict altogether,

coping with value conflict by adopting *gag rules* that restrict the legitimate topics of public debate" (p. 481).

Stewart (2006) further expands the repertoire of Thacher and Rein, producing "a more comprehensive theory" by studying value conflicts in the realm of policy change. Her set of strategies includes the three above plus hybridization, incrementalism and bias.

Hybridization is like marrying two conflicting values that, despite their discordant natures, are still better off together. Stewart (*ibid*., p. 188) defines hybridization as "the coexistence of two policies or practices with different value bases." For example, a management team "inherits the policy choices of its predecessors, and then adds further layers of its own" (*ibid*., p. 188). What is interesting about hybridization is that it can turn the multiple principals problem into a solution. Cross-pressures do not necessarily trouble agents in their task. Certain hybridized combinations of competing pressures reduce the necessary trade-offs among them. To take a simple example, cooking healthy and cooking tasty often conflict, but hybridizing the two in a skilled cook eliminates the conflict.

The second, incrementalism, is defined (*ibid.,* p. 190) as follows:

> *"A response to there being a lack of sufficient information to make fully rational decisions, or where the technical complexity of nonincremental change is overwhelming. But it may also represent a way forward when nonincremental change is likely to arouse value conflicts that are difficult to manage. Incrementalism, or stepped change, eases systems and dampens opposition, while signaling longer-run response to a perceived need for change, while avoiding the need to engage in more deep-seated analysis."*

Finally, bias, as defined by Stewart (*ibid.*), is to favor certain values over others through dominant discourses. Her concept bias is a way to cope with competing values by internalizing values. Stewart (*ibid.*) explains, "[V]alues, as well as ideas, are 'organized in' and 'organized out' through … the development of dominant policy paradigms and … technicization." She further explains technicization as "the tendency, partly inevitable, partly chosen, for value conflicts or even differences, to be dealt with by technical means—the 'instrumental rationality' Weber saw as one of the hallmarks of bureaucratic governance" (p. 190).

SYNTHESIZING THE VARIETY

Table 2.1 summarizes the variety of coping responses as found in scientific literature and discussed above.

Table 2.1 Coping strategies from the literature review

Coping strategies	Reference
Creaming off, rationing, bias, controlling clients, routinization, triage, etc.	Lipsky 1980
Enabling hypocrisy, finding less inconsistent niches, establishing coalitions of external groups with shared norms, rituals, double talk, myths of altruism, control or rationality, decoupling in time, topic, environment or organizational unit, separating the leader from those led, decoupling talk, decisions, products and action	Brunsson 1989
Boundary spanners, the logic of confidence	Lawton *et al.* 2000
Concealment, smokescreens, buck-passing, procrastination, demagoguery, depoliticizing, bolstering, sacralizing values, lexicographic strategies, spreading-of-the-alternatives	Tetlock 2000
Enacting occupational identities, bonding among workers, professional norms	Maynard-Moody and Musheno 2003
Cycling, firewalls, casuistry, defining floors, gag rules	Thacher and Rein 2004
Incrementalism, internalization, hybridization	Stewart 2006
Proactive convergence of competing values	Nielsen 2006

The wide variety of coping behavior as summarized in table 2.1 has much overlap. The repertoire of Thacher and Rein (2004), for example, appears to cover many of the other coping strategies. Casuistry could cover Lipsky's types as well as the enactment of identities. Sacralizing values and many decoupling types fall under firewalls. Tetlock's procrastination is an element of cycling. Myths, obfuscation and denying of conflicts, however, are not directly covered by either the repertoire of Thacher and Rein (2004) or the extended set of

Stewart (2006). These types seem to have more villainous connotations of avoidance and secrecy.

Most obvious coping strategies are still missing in the list, because they are generally treated in a different body of literature. Many forms of *shirking* behavior are missing, such as displacing goals, manipulating information, cheating and playing principals off against each other. *Cost-benefit analysis* is even more strikingly absent as a coping strategy. Many empirical studies with and without the term coping probably further extend this list of strategies.

A common thread among the authors and strategies in table 2.1 is the search for potentially functional conflict responses that deviate from the cost-benefit analysis or the 'rational actor model.' This rational actor model, underlying most principal-agent literature including the multiple principals problem, presumes and prescribes that weighing and comparing values is by definition the most efficient, and thus desirable, way for a decision maker to create a maximum outcome. Studies on coping, however, demonstrate the contrary.

In general outline, the coping strategies in table 2.1 emphasize two kinds of deviation from the rational actor model. First, many strategies avoid the comparison of values. As discussed, various authors consider painful trade-offs too complex to manage them effectively (Tetlock 2000, p. 239). Deliberately balancing multiple intrinsic values in conflict might even be impossible all together (e.g. Jensen 2001, Espeland and Stevens 1998, Chang 1997). Coping strategies may relieve decision makers of this burden by 'decoupling' competing values from each other which allows decision makers to protect one value against trade-offs and does not require a balancing act. Second, many coping strategies also distinguish from the rational actor model by escaping deliberate responses, for example by 'obfuscating' the actual conflicts. Trade-offs may still occur but without explicit permission of any decision maker.

We recast these two deviations from the rational actor model as dichotomies to enable a systematic description of coping behavior. These two dichotomies are 'coupling versus decoupling' and 'deliberate versus emergent.' This synthesis of the coping literature seems to cover its variety and connects with two main scientific debates on the nature of coping.

DECOUPLING VERSUS COUPLING

The first dichotomy distinguishes 'coupling' of competing values as a multi-value response from 'decoupling' being a mono-value response. Though coping always applies to a multi-value context, the response to it can

nonetheless be mono-value oriented. For example, firewalls and cycling are coping responses that decouple values, either in separate institutions or over time. Casuistry, hybridization and hypocrisy are ways of coupling.

The literature contains many variations of the coupling-decoupling dichotomy. Thacher (1999) illustrates this dichotomy with the fable of a hedgehog and a fox. The hedgehog's decoupling response to a conflict is similar in every situation. The response is single-minded, conditioned by fear, to prevent any harm. The fox's coupling response, by contrast, is a crafty balance between multiple factors in a given situation, finding gains by taking risks.

Brunsson (1989, Ch. 1) conceptualized the same dichotomy as the difference between internalizing and externalizing conflicts. Internalizing operationalizes a way of coupling. It means to cultivate, demonstrate, create and maintain conflicts. To externalize means to specialize, find a niche and homogenize shared norms and, thus, to decouple value conflicts.

The functionality of decoupling has been the subject of much debate, for example in the context of specialization and coordination (Verhoest, Bouckaert and Peters 2007). Decoupling is negatively associated with suboptimizations, avoiding conflicts, 'pillarization,' 'fragmentation' and 'bureaucratic siloization' (cf. Gregory 2006, Thacher 1999, Dörner 1996). At the same time, the Dutch Council for Social Development (RMO 2008) argues that decoupling should not merely be regarded a bureaucratic sin, as it also enables organizations to approach problems in a multi faceted way offering checks-and-balances for the trade-offs to take place. Thacher (2001, p. 767) emphasizes the functionality of 'firewalls' as a coping mechanism.

> *"Institutional fragmentation is not an accident of history but a desirable principle for institutional design."*

Van Eeten and Roe (2002, p. 135) elaborate on the varied strategic advantages of decoupling. Advantages are, for example, direct accountability, redundancy, functional specialization, institutional protection of vulnerable goals, error correction and possibilities for incremental, goal-seeking change. Empirically, decoupling strategies has also been observed as a prerequisite of 'high-reliability organizations' (cf. Roe and Schulman 2008, De Bruijne 2006).

Leading scholars like Durkheim, Wilson, Walzer, Bourdieu and Selznick, from various disciplines, adhere to institutional segregation of values

in order to prevent “certain death for some of them”, as outlined by Thacher (2001, p. 767). Thacher further exemplifies that the shared pessimistic view among these authors is that coupled coping creates intolerable inconsistencies, irrationalities, overly complex tasks for practitioners and paralysis institutions due to awareness of competing imperatives. In conclusion, these scientific discussions induce us to further unravel the positive and negative effects of both coupling and decoupling as a conflict response.

DELIBERATE VERSUS EMERGENT COPING STRATEGIES

A second scientific debate concerns the purposefulness of coping. From a more general perspective, Mintzberg and Walters (1985) distinguish ‘deliberate’ strategies opposite from ‘emergent’ strategies. Studies on the multiple principals problem adhere to the deliberate strategies, presuming agents to maximize utility. Our literature review on coping suggests trade-offs can occur more implicitly, for example as a result of internalized values or by means of hybridization or incrementalism. Tetlock (2000) describes trade-offs as emerging in daily life: “Trade-off reasoning should be so pervasive and so well rehearsed as to be virtually automatic” (p. 239). Espeland and Stevens (1998, p. 318) use the explicitness or visibility of trade-offs as a dimension in their analysis. This dichotomy directly relates to the archetypical opposites of an intentional cost-benefit analysis, weighing competing goals, versus a garbage-can-like process, in which optimizing trade-offs is not necessarily a central or even compatible element of organizations, as March (1994) argues. Similarly to the other dichotomy, divergent views challenge us to take stock of the virtues and weaknesses of both deliberate and emergent coping.

2.6 CONCLUSION

This theoretical chapter introduced literature-based and newly built concepts to understand how infrastructure companies deal with competing values. It discussed the principal-agent literature and the multiple principals problem. Both situate the responses to conflicts within agents, in our case, within these infrastructure companies.

The principal-agent model describes and prescribes how public values are safeguarded after delegating the provision from government to operational organizations. This model, however, has been criticized for its pre-occupation

on one rather specific type of conflict in which agents shirk the principal's incentives for their own gain.

The multiple principals problem enriches our understanding of the many possible types of conflicts and trade-offs that might take place within agents. Agents seem forced into these trade-offs due to inherently competing principals. An interesting effect is that agents indeed face new opportunities to shirk but without the opportunity to refrain from shirking.

Next, this study reviewed the literature on coping behavior to contribute a more substantial understanding of the organizational behavior of agents in response to value conflicts. Coping stands out as a major theme in conceptual as well as empirical studies on organizational decision making. Whereas studies on the multiple principals problem generally assume that agents maximize utility, the literature on coping shows the possibility of many other functional responses as well. We synthesized the literature on coping in two dichotomies to analyze strategies in the face of conflict, as visualized in Figure 2.3. Some strategies from Table 2.1 are used to illustrate the framework. Most types of strategies, however, do not take a fixed position in this framework, because their placement depends on the context and the perspective from which coping is described. Incrementalism, for example, can be either a deliberate strategy or an undeliberate course of events. This framework serves as our point of reference when describing how network-based utility industries cope with conflicting oversight objectives.

This framework has normative connotations. A ration actor model would prescribe 'deliberate coupling' as the most efficient way to create maximum outcome. From this point of view, all other quadrants are rejected for being suboptimal models for decision making. Insights on coping strategies undermine these assumptions (e.g. Thacher and Rein, 2004, Stewart 2006). For example, when human lives are at stake, this 'optimal' quadrant may even be considered an unethical way of messing around with an intrinsic value that is supposed to be non-fungible. Then, deliberate decoupling is generally a more defensible way of coping in these cases, but completely consistent decoupling is unlikely to realize multiple conflicting values simultaneously. In fact, strict decoupling may produce a fully unreliable and completely unaffordable but fully safe system. Similar reflections have also shown positive and negative effects for both deliberate and emergent coping in the coping literature. In the empirical part of our research, we examine under which conditions each of the coping quadrants proves functional or dysfunctional in the face of conflict.

	Deliberate	Emergent
Decoupling	e.g. firewalls	e.g. cycling
Coupling	e.g. cost-benefit analyses	e.g. hybridization

Figure 2.3: Framework to analyze coping strategies

Chapter 3 Research approach

At the start of this research it was largely unknown how infrastructure companies cope with competing oversight objectives. We therefore set off to study their organizational behavior qualitatively and inductively. The ultimate goal of this explorative approach is “to arrive at theories that are grounded in empirical observations and meaningful to the people whose actions and accounts they explain” (Von Meier 1999).

This chapter reports on how we tackled four methodological challenges: (i) selecting suitable case studies, (ii) gathering representative data on daily trade-offs affecting public values within the organizations, (iii) selecting respondents to see how oversight objectives trickle down the organizations and (iv) identifying public values in the data.

3.1 CASE STUDIES

Research techniques from the qualitative case study approach were selected due to our desire to explore real-life contexts (cf. Voss *et al.* 2002). This means we really wanted to *see* how organizations cope, in a manner similar to ethnographic studies. A major strength of this approach was its allowing for constant interaction with theory and theory building.

We chose to do three cases, balancing depth and validity with the given time constraints. These cases are Dutch Railways (NS), ENEXIS (formerly known as Essent Netwerk) and ProRail. NS is currently by far the largest passenger train operator in the Netherlands. ENEXIS is one of the main three electricity network companies in the Netherlands. ProRail is the Dutch rail infrastructure manager.

Several conditions guided case selection. First, a practical but necessary condition for case selection was that the organizations be open to us and willing to invest time in the research. Some 100 to 200 hours of employee time were required per organization. Moreover, a continuous and lively relationship with the personnel of the organizations proved a great help and, ultimately, a *sine qua non* for the study’s success. Research on trade-offs between public values particularly required a trustful relationship, since such study is likely to reveal

sensitive organizational conflicts, quite inevitable but still perhaps embarrassing.

Second and most important, network-based utility industries were to be studied. This family of industries shares three main features directly relevant to our research interest.

- *Large-scale technological systems* are used to transport entities over physical lines and nodes in each case. Electrons obey the laws of physics within an extensive network of cables and trains run across regions and continents over networks of rails and switches. Managing these engineered infrastructures traditionally gives rise to highly developed planning and control systems. Accordingly, policymakers can draw up relatively detailed specifications and unambiguous performance standards compared to industries providing more intangible services.
- *Institutional changes* form a second similarity across the cases. New institutional landscapes have emerged in these utility sectors since liberalization started in the 1990s (e.g. Ten Heuvelhof *et al.* 2003). The arisen institutional fragmentation gives rise to new coordination issues (cf. Christensen and Laegrid 2006, De Bruijne and Van Eeten 2007).
- *Public and political debates*, lastly, are intense for these network-based sectors, particularly with regard to the institutional changes. These ongoing debates interpret and constantly reinterpret public values of utility services triggering new operationalizations, new demands and new interventions (cf. Veeneman, Dicke and De Bruijne 2009).

Third, all case studies were to be conducted in The Netherlands. This helped to see similar patterns among the cases cancelling out many differences in oversight regimes and culture across countries. Also practically, this was time efficient as the cases overlapped in time. NS was studied from March 2006 to January 2007. ENEXIS was studied from November 2006 to August 2007. ProRail was studied from January to November 2007. This overlap enabled us to combine analysis of the three cases with incidental comparisons and serendipitous cross-fertilization. Moreover, use of the Dutch language allowed the researchers to fully taste the atmosphere of working situations and to treat the respondents and the excerpts from interviews in the researchers' mother tongue. All respondents benefited from the ability to speak freely in their own language.

This thesis reports on findings supported by all three cases, despite large differences in their systems' underlying complexities (Ch. 4). Therefore, combining two rail cases validates our findings within a sector. The addition of an electricity case validates our findings between sectors.

Within each case, we studied the organizational processes most directly involved with service delivery and the trade-offs for the full spectrum of oversight objectives. Limiting ourselves to a core operational process, including its planning and its day-by-day management, allowed a more exhaustive study of trade-offs and comparisons between the different organizations. Core processes typically encompass a large group of critical public values as well as notorious problems in realizing them. The selected core processes are running trains and transporting passengers for NS, maintaining the distribution network for ENEXIS, and rail traffic control for ProRail. The study incidentally touches upon many other processes and activities within each organization, but only as the related trade-offs affect the selected core processes. Chapter 4 further introduces these three processes.

3.2 DATA SOURCES

The two main data sources were direct observation and systematic open-ended interviews. Documents and discussion groups provided additional data. Moreover, we spent substantial time in the organizations preparing and transcribing interviews, reading documents and doing other work. Having the status of a trainee within these organizations for one or two days a week enabled us to get involved in informal chats in the office, the corridor, the canteen and at the coffee machine. This small talk, plus our casual observations and long-term exposure to the internal culture of the organizations, enabled us to develop a rich sense of context.

In total, we conducted 126 semi-structured interviews, each typically lasting about one hour. Additionally, we spent 25 working shifts out in the field, on the train, in control rooms as well as at some staff meetings. One shift or meeting usually took three to five hours, some extended through a whole day or evening.

Our conversations on trade-offs in the daily work of the respondents presented a number of potential pitfalls. First, the respondents needed space to reflect on what they daily do, as trade-offs are easily taken for granted in routines. Sufficient time had to be given for the respondents to get a handle on

these during the interview. Second, trade-offs might cause embarrassment, as they could involve aspects that respondents fail to realize in their daily practice for whatever reasons. Strikingly, many respondents quickly felt comfortable speaking freely and in fact seemed pleased to talk with us about their daily problems. Other respondents needed more time to speak freely. Therefore, we deliberately invested in the relationships with respondents during the interviews by showing interest, being open for respondents to identify what was important to them, allowing them to bring in their own issues (cf. Von Meier 1999) and being clear about the intentions of the research. We used various interview skills, such as attitude-related techniques (cf. Weiss 1995, Wagenaar 1996, Heyl 2001).

Three open-ended questions were presented to the respondents in advance of the interviews. All interviews, with top managers and operators alike, started with this same basic structure. It did not work to directly ask people for examples of 'trade-offs' in their daily working life. The concept was somehow difficult for them to apply and, therefore, remained exclusive to the analysis. Instead we started with a more open question, inquiring about what respondents pursued in their daily work and how successful they were in that endeavor. Our aim was to bring out respondents' perceptions, their dilemmas and their own position in the processes. Indeed, we received a great variety of answers and produced a broad spectrum of values that people perceive and pursue. Our questions, sometimes asked repeatedly using various wordings, boil down to these three.

> What objectives are the most important ones to achieve in your daily work?
> How do you achieve these objectives in daily practice?
> Do you face complications in doing so?

After a few initial interviews, we started to observe operations at the operators' places of work. As these sessions proved highly interesting for the study's purpose, we extended the time allowed for operational observations. Operators proved particularly talkative on-site, where they seemed to posses a natural urge to narrate their daily occupations. They extensively explained how things worked. There was a lot to see such as their tools, the forms, the screens and the working environment, the infrastructure itself and, particularly interesting: action, courses of action, the many irregularities, phone calls coming in,

impromptu meetings with other operators, customers and managers on-site, the 'household remedies' and more advanced problem solving.

During the observation shifts, we took elaborate field notes. These notes described not only the actions but also how the operators explained what they did and the consequences of actions, if known. This can be called 'participatory observation,' defined as "a data collection method by which researchers systematically observe people while joining in their routine activities" (Macionis and Plummer 1997, p. 48). The participatory element fulfilled a crucial role, similar to the interviewer-respondent relationship discussed above. Involvement in the work practice potentially reduces the disturbing factor which observers inevitably are (Brewer 2000, p. 59). In practical terms, we therefore spent long shifts with a worker, typically more than three hours. We showed much interest in the work, using simple wordings and not avoiding informal talk to put workers at ease. Before, during or after their shift, we asked workers to explain to us what was going on and why they did as they did. During busy periods, workers often made impromptu comments about what was going on, as opposed to what was supposed to happen.

We combined the field notes with transcripts of the interviews according to an established approach in organizational studies (Gouldner 1964, Ancona and Caldwell 1992, Von Meier 1999, Juhlin and Weilenmann 2001, De Bruijne 2006). The strength of the interviews is the focus on the research questions. The strength of the observations is the deep and valid understanding they offer of practical contexts. Combined, they facilitate discovery of new explanations, both complementary and contradictory, for understanding coping behavior.

Interaction between interviewing and observing has proved particularly crucial to expose coping behavior in everyday practice. When a train conductor, for example, blows his whistle, signaling for departure, it is not clear whether he is coping, inducing a trade-off, anticipating (future) conflicts or not. Therefore, we needed to ask these workers to explain what they did and why. This resulted in abundant quotes we could use to report our observations of coping strategies. The interviews were similarly organized. We first asked respondents to plainly describe us their daily work. Then, surveying their descriptions, we let them further explain their reasons for what they say they did. We could also use these quotes abundantly. These quotes show how respondents perceive their task which often remains invisible when observing them.

Policy documents formed a third data source. We mainly gathered those documents that were mentioned in interviews or were available on-site. During the interviews, we asked respondents to explain the meaning of these documents with respect to their daily work. Internal and external policy documents helped us to orientate and assess a range of public values and the achievement thereof. Among these documents were external and internal performance contracts, annual statements and plans, policy documents, accounts and reports, discussion memos, minutes of meetings, PowerPoint presentations, planning schemes, operational handbooks and forms.

The fourth and final data source was discussion on our findings with practitioners. Besides constant informal dialogues on our research with several practitioners, we took part in four dedicated workshops, co-organized with the organization, each involving 8 to 40 persons, among whom were middle managers, strategic managers and staff. So a broad group of managers validated our findings. These workshops lasted one to three hours. Participants interactively discussed the coping behaviors we found within the organizations and ways to support intelligent coping. We used anonymous quotes from respondents to illustrate our findings. It proved a lively validation of our hunches to witness managers' responses to comments made by various employees.

At the same time, these many feedback conversations, as well as 'going native' in general, constitute a risk for scientific research. Researchers may "become wrapped up in the world view of the people they are studying" (Bryman and Bell 2003, p. 455) and, ultimately, lose their integrity. Indeed, the companies were offered many chances to retort our findings. This was, in fact, a precondition for them to let us publish about their internal affairs. In our case, the risk of being under too much influence of the companies seemed limited, since we did not aim to judge but mainly wanted to describe the daily problems from the companies' perspective. Moreover, these companies do not have 'one world view' to immerse researchers in. Two departments more often than not held divergent or opposite opinions on our topic. Making sense of both at the same time generally compelled us to withdraw from their influence.

In total, these four data sources revealed multiple, partly overlapping, realities. The interviews generated data from a self-narrated and self-contemplative perspective. The observation shifts revealed practices as they unfolded, providing insights on how people act and what people say they think while they are acting. The documents contained the related formal context and

prescriptions of how the organization supposed to function. Finally, the workshops emphasized managers' reflections on the functioning of operations and the organization at large. Constantly comparing and reconciling these multiple realities raised a fairly valid and rich dataset.

Tapping all of these data sources resulted in a huge amount of detailed descriptions of daily work in the three organizations. We dealt with this enormous amount by frequently discussing pairs of recent interview reports and field notes among two or three researchers *au fait* with the matter. Iteratively, each discussion session raised and rejected insights sharpening our future observations in the field and way of questioning in the interviews. Then, we focused our analysis on an organization (e.g. Steenhuisen and Van Eeten 2008) or on a type of worker (e.g. Van den Top and Steenhuisen 2009). Later, these convenient amounts of data could then be further compared to test and re-test our provisional understanding and emerging notions between organizations and various types of workers.

3.3 TRANSECTING THE ORGANIZATIONS

The selection of observed and interviewed respondents introduced us to many levels and many sites in the organizations. Our first contacts and interviews involved externally oriented managers near the strategic top. We established durable relationships with these first contact persons, as they committed to the research project. These managers were initiated into the institutional environment of their company and surveyed how public values take shape in rules and requirements for the organization to comply with.

Subsequently, we took each public value and tracked its operationalization seeping through the organization as far as it went. Most respondents gave rise to new interviews, as the values they pursued led to instructions, delegation or deliberation with other tasks. In this way, chains of interviews emerged. Most tracks eventually led to operational processes. Some tracks fizzled out in paper specifications without any discernable connection to actual realization. Some interviews gave rise to new tracks to trace back up again.

The chains of interviews took many turns, but generally emphasized the following pattern. The first respondents near the strategic top intuitively linked our research interest in trade-offs to the main specifying departments and their core strategic planning tools. Subsequently, we interviewed the main planners

in the technostructure at the base of these planning tools. After these interviews, the planners referred us to a tactical level of planning for further details and other areas of conflict. We followed this planning logic. Next, many values were also assigned to specialized departments and coordinating managers. We interviewed these staff members. Together, these planners, strategic managers and staff produced many rules and conditions for the core operational processes. Next, we started interviewing and observing the operational workers involved in their process. Afterwards, we ascended the hierarchical structure of middle managers in the operational departments up to the top. These interviews, in turn, often spoke of issues and projects that brought us back to the planning departments again, sometimes discovering new staff members or departments we had not met before. This is basically how we selected our respondents. Various interviews were doubled, if possible, to verify whether people with the same task had different perceptions and styles.

The diffusion of respondents forms three scatter plots on the organizational charts (Figures 3.1, 3.2 and 3.3). The numbers indicate the amount of interviews per unit.

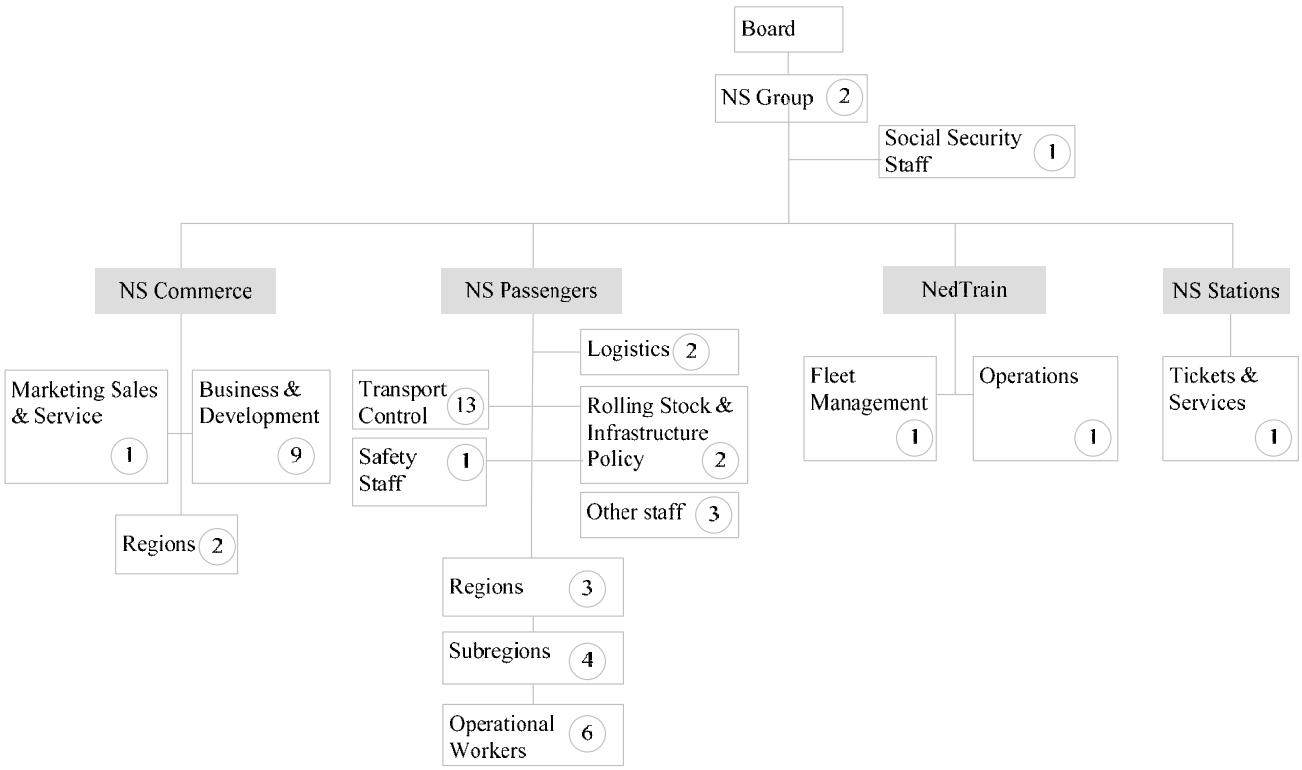

Figure 3.1: Respondents at NS on organizational chart (simplified)

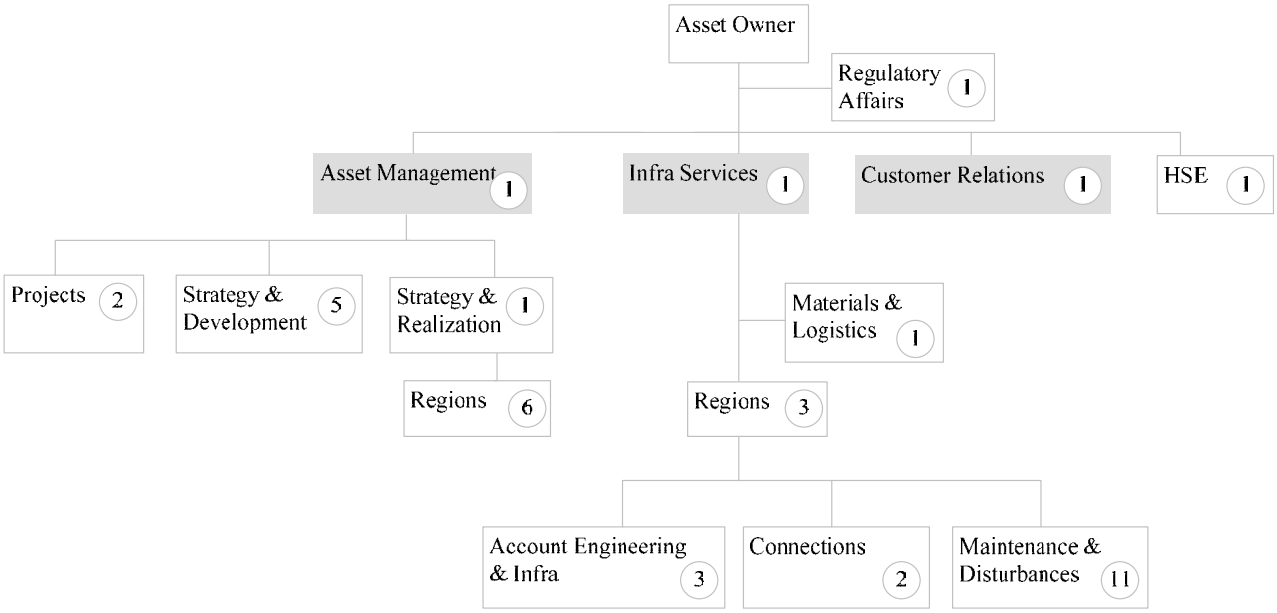

Figure 3.2: Respondents at ENEXIS on organizational chart (simplified)

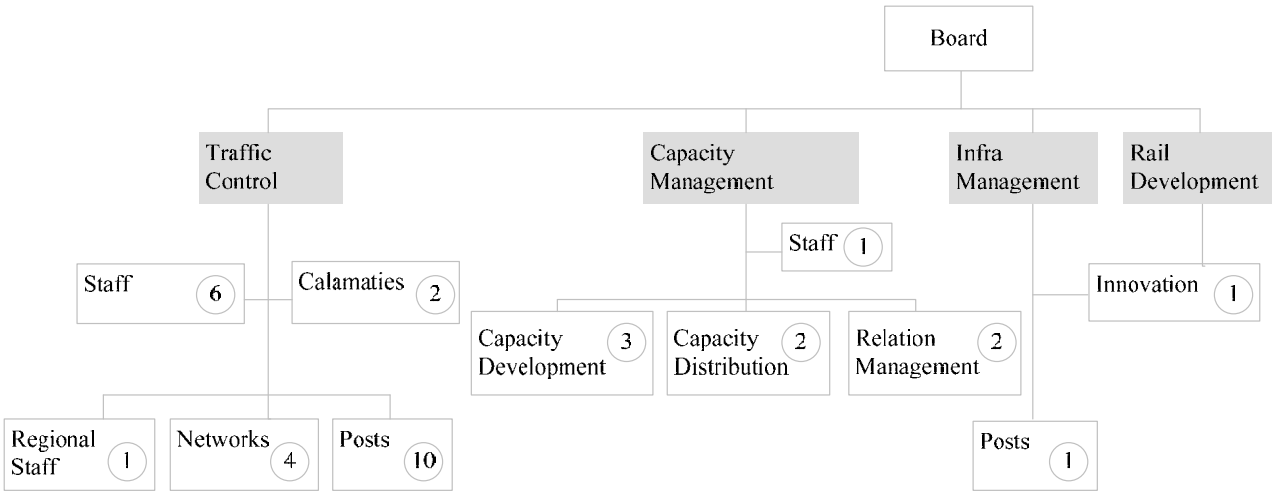

Figure 3.3: Respondents at ProRail on organizational chart (simplified)

To compare the selection of respondents across the three cases, we use the perspective of Mintzberg (1983) who describes organizations as a configuration of five parts: operations, line, technostructure, support staff and the strategic apex. When we plot the respondents in this configuration, we see that those selected are spread over three parts, namely the ‘technostructure,’ ‘operations’ and ‘line’ (Figure 3.4).

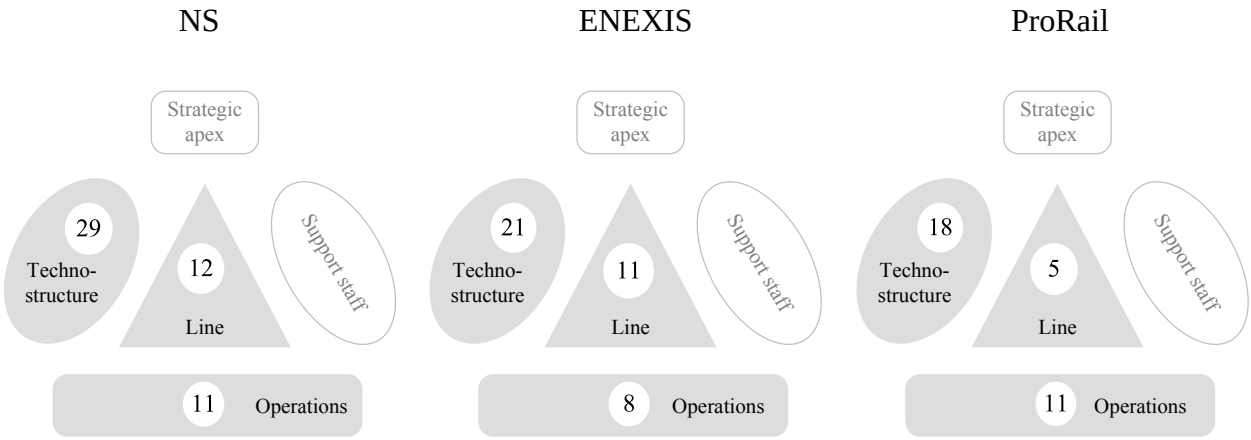

Figure 3.4: Plots of respondents in a Mintzbergian organization

These Mintzbergian plots reveal that most respondents work in the technostructure of the organization. This would indicate that the organizations are coordinated as 'machine bureaucracies,' according to Mintzberg. Indeed, the features of machine bureaucracies seem at first to apply to these organizations. The organizations are old and large. They conduct mass production. Their planning and control systems are highly developed. In the empirical chapters of this thesis, however, we will discover that the organizations function as 'professional bureaucracies' too.

3.4 IDENTIFYING PUBLIC VALUES

In broad outline, our method is to track the realization of public values through the organizations to find out where these values conflict. Oversight bodies set to work with laws, objectives and a mission and converted these into policies, standards, interventions and performance agreements. Within the network-based industries, we observed how the articulation of public values is further operationalized in plans and procedures and so on.

Our way to track public values within the industries assigns the researcher to clarify how all these articulations of objectives, in a conflict situation, relate to ends most valuable to society, as government eventually meant to address them. Thacher (1999, p. 74) and Rein (1976, p.73) have previously argued for this 'value critical position' for a researcher to take, treating values "not merely as the accepted aims of policy but as a subject for debate and analysis" (*ibid.*) and investigating values "in relation to others by

looking at the consequences of pursuing these aims and by considering the latent goal conflicts among them" (*ibid.*).

This 'value critical qualitative analysis' requires an interpretative perspective that generally combines well with our semi-ethnographic method (Rhodes *et al.* 2007, p. 3-4, Thacher 1999, p. 81-87). This proved particularly apt as the same values appeared in very different qualities and circumstances among the many interviews and observations. Some respondents seemed to equate the values they pursued with the norms they worked towards, though the same norms were thought to undermine the intended value at other sites. Many respondents had a broad, ambiguous and variable notion of the values they pursued. Our interpretative approach allows us to understand how these people working in infrastructure companies may shape and change the values they pursue in daily practice (Rhodes *et al.* 2007, p. 228).

Judging the respondents' objectives as stated in the interviews merely in relation to oversight objectives would cause many discrepancies and also leave out many critical aspects of the underlying public values. Therefore, we did not use the oversight norms and tasks as our point of reference, but we allowed ourselves to make sense of the objectives of our respondents from a broader public value perspective. For example, train punctuality is a strict oversight objective. It may articulate the underlying public value that passengers arrive at their destination in an acceptable and predictable time, or something similar. The exact public values hardly ever appear clearly defined in terms of instructions. In the course of the research, our understanding of public values grew steadily richer and became more nuanced as managers and operational workers explained and demonstrated their daily work.

So, the respondents' perceived objectives, either instructed or self-imposed, constitute our point of departure. Respondents stated and revealed the objectives they pursued in their daily work. These objectives connect to daily actions and choices as well as the oversight objectives and the public values underlying them. From a value-critical perspective, we assembled these various expressions of public values and inquired case-by-case into whether a coping response concerned a public value.

Thus, we take a set of oversight objectives (Ch. 4) to identify the realization of many public values, but we only use these objectives to interpret the more ambiguous aspects of the underlying values. This 'value-critical position' ultimately makes an appeal to our own judgment as researchers to verify and to communicate what public values are concerned in operational

dilemmas. In other words, we designed our method so that the "research itself identifies values," as Thacher (1995, p. 75) explains. To use their phrasing, "by working backwards from the sometimes vague and conflicting ideas that practitioners advance" (*ibid*.), we aim to "identify and clarify their core values without abandoning any anchor in their own perspective" (*ibid.*). To validate whether we succeed in this ambition, we frequently discussed our judgments with representatives of the organizations and oversight bodies during the research in formal and informal settings.

3.5 SUMMARY

In a nutshell, the research approach consists of three case studies. We interviewed many members of our case-study organizations, including planners, strategic managers, middle managers, staff members and operational workers. We also observed some of our respondents and particularly operational workers, their involvement in the realization of public values and the trade-offs they made on a daily basis. These two main data sources are contrasted and complemented in two ways. Beforehand, we studied internal and external policy documents, and afterwards, we maintained a dialogue with practitioners in their working environment and in workshops on the interpretation and validity of our findings. In the analysis, we aggregated this data to describe organizational behaviors for the three case studies together.

Chapter 4 Introduction to the cases: utility provision in new institutional landscapes

This chapter familiarizes readers with the three network-based organizations studied, including their organizational settings and core operational processes. It then describes the new oversight systems surrounding these organizations. The objectives of the oversight bodies indicate the public values to track out in the empirical research.

4.1 THREE NETWORK-BASED BUSINESSES

This section introduces our case-study organizations: train operating company *NS*, electricity network distribution company *ENEXIS* and rail infrastructure manager *ProRail*. In profile, their businesses show many resemblances. All three are network-based businesses. They operate large technological systems, providing utility serves to millions of customers. Their businesses are costly, each has many employees and all require long term investments. At the same time, their products are very different. This section profiles these companies drawing information from the interviews, their annual reports and websites.

HISTORY OF GROWTH

Construction of rail and electricity infrastructure started in the 19th century as an eccentric novelty, a luxury and daredevil escapade of private investors. A century later, these infrastructures have been transformed from physical accessories to ingrown elements of societal welfare. They have become vital and seemingly irreplaceable for countless economic and social processes. The use of electricity and trains today is greater than ever before and still growing (Figure 4.1 and 4.2).

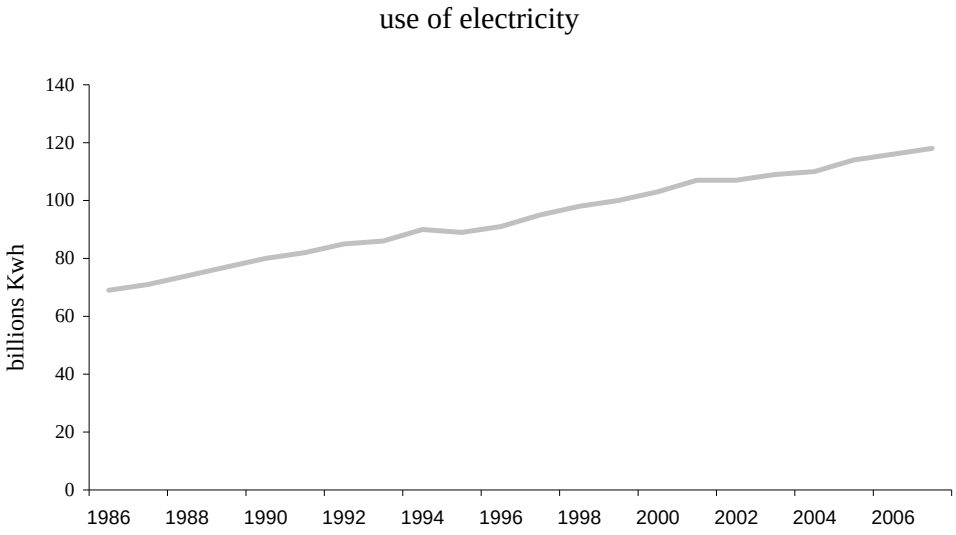

Figure 4.1: Use of electricity in two recent decades (Energiened 2008)

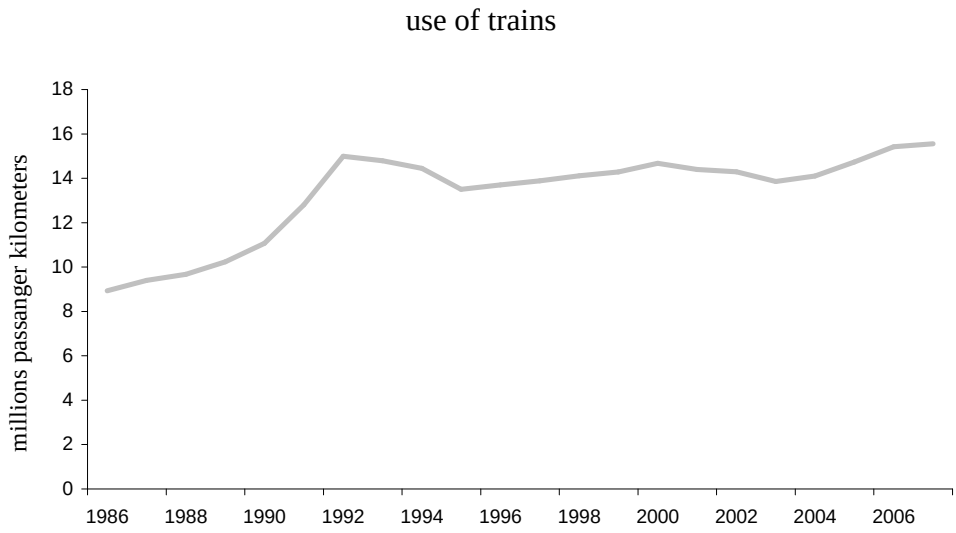

Figure 4.2 Use of trains in two recent decades (NS annual reports, Veenendaal 2004)[i]

UTILITY SERVICES

Network-based organizations provide for electricity and mobility. Currently, NS, the train operating company, provides transport to some 1.1 million passengers daily. This makes it by far the largest provider of passenger train services in the Netherlands. Next, rail infrastructure manager ProRail indirectly serves 1.2 million passengers and the transportation of 100,000 metric tons

freight daily, offering rail tracks to more than thirty train operating companies. The number of companies operating trains in the Netherlands has steadily grown since liberalization began, and it still grows. Finally, electricity network distribution company ENEXIS connects over 2 million customers to the national electricity grid. This organization is one of the major electricity distribution companies in the Netherlands.

INFRASTRUCTURE SYSTEMS

All three organizations operate a large physical infrastructure system. NS operates about 2,000 trains. ProRail operates a national grid including 6,500 km of railway, 8,200 switches, 9,800 signals, 4,500 km of overhead wire, 4,500 bridges, 2,000 crossings and some 400 stations. The numbers get larger at the electricity distribution company, ENEXIS, which operates mainly underground regional distribution networks that connect households, industry and other customers to the national grid. These regional networks consist of 142,300 km of electricity cable below 110 kV, 49,700 electricity substations and more than 2 million physical connections to customers.

COSTS AND PROFITS

The recent institutional reform of network industries created profitable companies for the distribution of electricity and the provision of train services. In the research period, the electricity distribution company has been most attractive for shareholders, providing a 12% return on investment. The train operating company provided a 6% return. The infrastructure manager receives a yearly budget of about 2 billion Euro.

One of the major expenditures of these companies is staff. All three have large workforces. The train operating company is by far the largest employer, with 28,000 employees. The infrastructure manager employs about one-tenth of that number, 2,600 people. The electricity distribution company employs 3,500.

CORE OPERATIONAL PROCESSES

Ultimately, utility services are provided and sustained in infrastructure operations. The core operational processes within the three organizations are: ‘running trains and transporting passengers,’ ‘controlling rail traffic’ and ‘maintaining electricity distribution networks.’ These rather diverse processes

are carried out primarily by train staff, traffic controllers and mechanics and supported by many diverse managers. In the same operational departments, line managers directly instruct and oversee these processes. In separate planning departments, strategic managers and planners instruct and make specifications regarding dedicated values in operations.

NS runs trains and transports passengers

All trains have a driver. Most have one or more conductors as well, depending on the length of the train. One train may carry a few or hundreds of passengers. Many other NS employees, like platform managers and service employees, assist at the stations (Figure 4.2).

Figure 4.2: An NS service employee on a platform (NS Vervoerplan 2007)

A conductor has various tasks, including implementing the departure procedure at each station, providing passengers information and many other services, maintaining train security, fining or removing fare dodgers, overseeing the physical train conditions and assisting with shunting activities. The departure procedure is one of the conductor's core activities.

A safety signal at each platform signals the conductor when it is time to start the departure procedure. Additionally, a green signal to the driver indicates when the next segment of rail is available. When the conductor decides to depart, she or he signals the driver with a disc or a whistle and closes the doors. Train drivers then have the end responsibility for departure.

In between stations, train drivers control the speed of the train. They also regularly inspect the more technical aspects of the machinery. They perform brake tests, make minor repairs and sometimes call travel information over the intercom, alternating with the conductor.

Train routes are divided into segments. Signals tell drivers whether the upcoming segment or the next is safe and available. If all runs according to plan, train drivers see only green lights between stations. An orange signal alerts the driver to slow. A red signal means stop. If a train driver passes a red signal, an automatic break system activates for trains traveling faster than 40 km/hour where the train driver somehow failed to activate the break.

Train staff cooperate and communicate with a large team of other operators, either face to face, by mobile phone or silently by means of their 'rail pocket,' a standardized handheld computer. Among the other operators are controllers at ProRail, controllers at NS, platform managers, service employees, mechanics, cleaners and police.

A wide variety of tasks is allocated to the NS transport control center. At this control center are controllers for rolling stock, controllers for personnel, information coordinators, customer coordinators and so-called 'analysts' who do the actual control, revising the timetable in real time, if needed, and coordinate these adjustments with ProRail. We refer to these analysts as 'transport controllers', although NS reserves this title for the main supervisor in each regional transport control center.

Additionally, NS junction controllers work in local control rooms separate from regional transport control. These local controllers implement the transport control plans at the junctions. They also plan and coordinate various shunting activities, planned or ad hoc, replacing a defect locomotive for example. Though we observed junction controllers as well, we leave them out of our analysis since their actual decision space with respect to value conflicts is rather small.

Line managers in the NS Passengers Department oversee train staff. There is 1 main line director, 4 regional directors and 13 'product managers' for the smaller regions. Each product manager has about 15 first-line managers who oversee a group of about 50 operators each. Planners in this department draw up the timetable, plan for rolling stock and other staff members oversee safety issues.

Next, strategic managers in the NS Commerce Department instruct and support train staff and controllers regarding plans and work procedures. Various managers are in charge of particular values, such as customer service, accessibility for people with reduced mobility and security. There also is a coordinating performance management system, as will be further explained in Chapter 6.

ProRail coordinates rail traffic

The traffic control process is coordinated by the Traffic Control Department at ProRail. There are regional and local control rooms, like at NS. ProRail employees in four regional control rooms plan and re-plan train routes and decide on alternative scenarios in case of disturbances. Seventeen local control rooms oversee small parts of the network. A local traffic controller, also called railroad dispatcher, may oversee a segment of rail tracks, a few small stations or only part of a main station. These traffic controllers can either passively oversee choices made by the computer or they can actively manage signals and switches. Local traffic controllers and regional traffic controllers together determine the routes trains take. Besides these two levels of controllers, ProRail has several other control rooms for infrastructure maintenance and calamities.

Controllers have various technical systems at their workplace (Figure 4.3). There is a silent communication system through which all controllers can signal obstructed tracks, new trains and other mutations in the timetable. Transport controllers at the train operating companies are connected to this system as well. Next, there is a screen that plots the timetable in a graph of routes and times to see ad hoc whether there is space to plan extra trains. A planning screen at the regional control rooms shows messages on mutations that controllers must check and initial if they see no planning conflict in their area. Local traffic controllers have screens that show the rail tracks from a bird's eye view with the positions of signals and switches and the trains moving from one section of rail to another. Most important, finally, each controller has one telephone. Much communication is done by phone, particularly during disturbances.

Figure 4.3: Traffic controller's workplace at ProRail (photo: Van den Top)

The overall traffic control process is designed to work according to ‘traffic control squares.’ These separate and connect controllers in two ways: between the regional and local levels and between the train operating companies and the infrastructure manager (Figure 4.4).

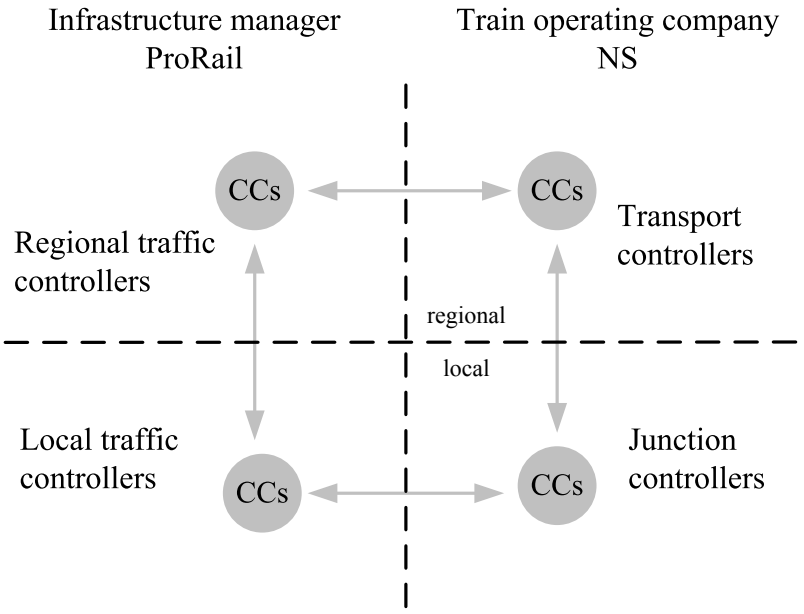

Figure 4.4: Control centers (CCs) and communication lines (arrows) in the traffic control process

Each control room at ProRail has a line or ‘post’ manager in the Traffic Control Department. Next, there are local planners and staff for safety, security and environmental issues.

At the Capacity Management Department, planners draw up the timetable. To do so, they organize negotiation rounds with numerous stakeholders, including train operating companies and the Infra Management Department for railway maintenance (Ch. 6). Other managers make general agreements on standards with the Dutch Ministry of Transport, the train operating companies and various other stakeholders.

ENEXIS maintains distribution networks

Like conductors, mechanics in the electricity distribution company fulfill a wide variety of jobs. They inspect, measure, repair, replace, build, clean, vacuum, mow, dig, paint and interact with customers. Mechanics mostly work

outside, in trenches or transformer houses, rain or shine (Figure 4.5). There are several loosely connected groups of mechanics: groups to connect customers, groups to build new additions to the network and groups to do maintenance and repair acute disturbances.

A considerable and increasing amount of mechanics work is being outsourced to private contractors. The group that responds to disturbances and does maintenance is the core group of mechanics that is still a full part of the organization. Most mechanics drive a company van that serves as a ‘mobile workshop’, full of tools and basic spare parts. These mechanics are managed by a ‘chief in the field,’ usually a senior mechanic. This chief drives from one location to the next where crews work on a disturbance or a planned job. A chief might spend about one or half a day per week at the office doing administrative jobs. Mechanics and chiefs have a laptop that connects them to various information systems for drawings, detailed rules and planning systems.

Figure 4.5: Mechanics working in a trench (Werk & Vakmanschap)

There is always a chance that mechanics, responsible for repairing acute disturbances, will be interrupted in their daily maintenance activities. While replacing an old transformer, an emergency call may come in. Then, they leave their scheduled job and drive to the site of the possibly disrupted electric cable. Disturbances must be repaired, day or night. Once they arrive at a scene, mechanics may have to dig up a cable, under the street, in sand or in clay. After such a disturbance alarm, mechanics work continuously to conduct the repair, alternating in shifts lasting throughout the night when necessary. When the disturbance is repaired, they start re-planning the activities they have left undone.

At the ENEXIS Infra Services Department, line managers, staff and technicians support and instruct mechanics and their chiefs. In the same operational departments, there is a central unit for logistics and spare parts. For health, safety and environmental issues, there is a central unit.

Next, strategic managers and planners in the Asset Management Department specify working procedures and an annual work package, including maintenance activities, replacements and network extensions (Ch. 6).

Other occupations elsewhere in the three organizations

These three core processes at the network-based organizations are nested within many other processes and activities elsewhere in the organizations. These related occupations generally set the conditions for the core processes and display many interdependencies with them.

As such, train operating company NS is involved in the development of stations as well. This includes co-designing, financing and utilizing stations, developing a variety of policies relating to issues ranging from terrorism to entertainment. Tickets, information and service provision are continuous processes at these stations. Another business is to maintain and clean the rolling stock. Although these other businesses are run in separate departments, both station management and rolling stock management are tightly related to the core process of running trains. The scarcity of rolling stock creates many operational interdependencies between maintaining and running trains. There are strict limits to the number of kilometers a train may travel before requiring maintenance. Train upkeep must be planned at a maintenance site, but many surprises in the daily flow of trains might turn this planning upside down. Therefore, maintenance sites are deliberately spread over the country to ensure that the tight planning of both trains and maintenance go together. Furthermore, there are other activities with less tight relations to the core processes, such as marketing, consulting, educating personnel, innovation, long-term planning and running trains abroad.

Likewise, the rail infrastructure manager has many more occupations than only traffic control and capacity planning. Building, co-designing and maintaining and cleaning stations is the responsibility of the infrastructure manager. Other businesses are building, designing, repairing and maintaining the rail system, including tracks, signals, switches, wiring and civil works. This involves large amounts of capital as well as strong interdependencies with the traffic control process. For most of the maintenance, the infrastructure manager

oversees contractors that carry out the actual work. There are also various innovation and ICT development projects, some closely related to traffic control.

The electricity distribution company is at least as diverse as the other two organizations. ENEXIS operates a gas network besides the electricity network. There are commercial branches for industrial clients and for measurements. There is a separate department for customer relations dealing with complaints and customer appreciation, overseeing the energy balance administratively and undertaking collections. There is a small detective force to trace illegal electricity tapping. There is a department to develop innovative projects. Although none of these processes have technical interfaces with the core process of maintaining the network mechanically, these other processes do make use of the expertise and time of mechanics from time to time for various reasons.

Many public values are involved in these peripheral processes, such as universal access to the infrastructure services, innovation, consumer protection, work safety and sustainability. Planning new infrastructure concerns many clients and many industrial, town and regional interests. The management of real-estate involves great amounts of capital, either public or derived from captive customers. These peripheral processes not only have costs but also provide major income to the organizations. Our study may touch upon these peripheral processes in relation to the core processes.

4.2 NEW INSTITUTIONAL LANDSCAPES

Recent institutional changes marked a paradigm shift in network-based industries (Ten Heuvelhof *et al.* 2003). Some 15 years ago, the State started to distance itself from the actual provision of utility services in most countries in Western Europe. Government started to unbundle the industries in order to liberalize them. This development underlay the three organizations as described above. Simultaneously a new system of oversight emerged. These changes, together, were expected to reduce costs and improve the services provided, as the new network-based organizations would have more freedom to operate and more incentives to become attractive businesses. The institutional changes created a completely new institutional landscape in and around each of our case-study industries.

NEW SECTOR-SPECIFIC LAWS

The new institutional designs of the network sectors were formalized in sector-specific laws. These laws aimed to facilitate liberalization in parts of the industries while safeguarding the public interest. Public values believed to be at risk due to the monopolistic nature of service provision and the fact that most citizens depend on these services daily.

In 1998, the new Electricity Law was ratified following EU directive 96/92. This law assigns tasks, duties and constraints to the distribution companies. Among the specified tasks are building, operating, maintaining, renewing, repairing and extending the networks, securing safety and reliability of the networks, ensuring sufficient reserve capacity and assisting users and producers of energy in connecting to the network (article 16). The law further requires an energy regulation authority to determine fair incentives for efficiency and 'optimal quality' as well as to monitor that the companies do not earn higher than reasonable returns (article 41).

In 2003, the new Rail Law was ratified with reference to EU directives 96/48, 2001/12, 2001/13, 2001/14 and 2001/16. The law articulates tasks and duties of the minister, oversight bodies and the industry. It also describes agreements and payments to be made between the infrastructure manager and train operating companies. Overall, the law aims to contribute to the societal utilization of the rail infrastructure ánd the protection of the environment. It further pays attention to safety, interoperability, accessibility for people with reduced mobility and non-discriminatory treatment of train operating companies that want to use the rail infrastructure as well as other facilities. The Office of Transport Regulation was assigned to oversee the non-discriminatory principle. Next, the law requires the minister to institute a system of franchises to secure a broader range of public values, as discussed further below.

FRAGMENTED OVERSIGHT ENVIRONMENTS

The paradigm shift set out to reduce government involvement in the provision of utility services. Still, such provision needed to be well-organized due to concerns about strategically behaving organizations and eroding public values. This led to a new system of oversight bodies characterized by proliferation, expansion and fragmentation of institutions. The literature often refers to this as re-regulation in response to de-regulation (Majone 1996).

Oversight bodies surrounding NS

In the past, NS was the only provider of rail and train services in the Netherlands. The Ministry of Transport owned and financed NS. Nowadays, direct financial support from government has run down to zero.

The ***Ministry of Transport*** is now the primary oversight body in the railway industry. The ministry granted NS an exclusive franchise for the main network for the 2005 to 2015 period. Performance standards in the franchise relate to a great many public values, including punctuality, personal security for passengers and crew, availability of seats, information service provision and tidiness of trains and stations. Standards for these values are set annually, defining adequate service levels. Other public values are identified in the franchise as well, though without specific standards. These are the growth of passenger numbers, accessibility of major cities and all parts of the country, particularly during peak hours, safety, reasonableness of tariffs and non-discriminatory access for people with reduced mobility. The Dutch Parliament is closely involved in the relation between the Ministry of Transport and NS, calling for higher standards, stricter compliance and other interventions.

A new ***Office of Transport Regulation*** (‘Vervoerkamer’ in Dutch) as a part of the Netherlands Competition Authority (NMa) was established to oversee fair competition in providing train services. This office sometimes obligates NS, still by far the country’s largest train operating company, to place their means at the disposal of other train operators.

Rail safety has its own legislation overseen by the ***Transport and Water Management Inspectorate*** (IVW), recently expanded with a rail division. This rail division at the inspectorate was formerly an internal NS division. Next, the ***Dutch Safety Board*** (‘Onderzoeksraad voor Veiligheid’ in Dutch) and the ***Labor Inspectorate*** oversee safety issues at NS and ***fire brigades*** and ***police*** enforce implementation of safety instructions. In 2004, the ***European Railway Agency*** was erected to develop common standards to foster rail safety as well as interoperability and economic viability.

In 2005, the Ministry of Transport transferred ownership of NS to the ***Ministry of Finance***. The new owner requires a return on its investment. At times, other ministries are concerned with NS as well. Parliamentary questions about NS, for example, have been addressed to eight different ministries in the past years.

Besides the formal oversight bodies, ***consumer interest groups*** have been granted official involvement in a consultation platform on NS (‘Landelijk

Overleg Consumentenbelangen Openbaar Vervoer' in Dutch or LOCOV). This involvement may lead to regulatory interventions through legal procedures or by means of a formal advice to the Ministry of Transport. Its involvement spreads over most public values. Price-quality ratio, for example, is an item not explicitly covered by other oversight bodies. Next, the *provinces* were assigned the role of regional transport authorities in 2000, to oversee the capacity and quality of train transport in their region.

Oversight bodies surrounding ProRail

Before the institutional unbundling of rail infrastructure and trains, the businesses of ProRail were part of NS and thus owned and financed by the Ministry of Transport. For ProRail, this remained so after unbundling.

In addition, the *Ministry of Transport* oversees multiple performance standards in a franchise. Specific performance aspects with yearly standards are the quality of traffic control, the quality of information services, the availability and reliability of rail infrastructure, tidiness and personal security at stations, accessibility of stations, quality of capacity distribution and efficiency. Safety and environmental issues are also included in the franchise but not operationalized in performance standards.

The list of other oversight bodies is long. The *Transport and Water Management Inspectorate*, the *Dutch Safety Board* and the *Labor Inspectorate* oversee various safety issues. The *European Railway Agency* participates to facilitate European standards. For security issues, ProRail sometimes makes general arrangements with the *Ministry of Internal Affairs*, but several *fire brigades* and *police forces* still may hold on to their own local practices and make their own agreements with ProRail. The *Office of Transport Regulation* oversees the non-discriminatory distribution of capacity and equal treatment of the train operating companies using the rail infrastructure. The *Ministry of Housing, Spatial Planning and the Environment* (VROM) oversees environmental issues, such as norms for noise of train traffic and procedures for dealing with refuse from maintenance activities. *Provinces* and *municipalities* are involved in relation to noise, spatial planning and various other issues.

Oversight bodies surrounding ENEXIS

The reforms of the 1990s gave rise to much larger and more autonomous organizations in the electricity sector. Simultaneously, several oversight bodies emerged around them. The main new oversight body was the *Office of Energy*

Regulation (‘Energiekamer’ in Dutch) formally known as ‘DTe.’ The office is accommodated in the NMa. Since 1998, DTe has regulated tariffs, imposed incentives for efficiency, overseen fair competition between energy companies and drawn up benchmarks. In 2001, DTe staff numbers were considerably expanded by Parliamentary decree in order to make the office more knowledgeable and effective. Since 2001, DTe has broadened its scope to include capacity issues. Since 2005 its scope has included ‘quality’ in terms of security of supply. A recent extension added six additional indicators for power quality to the performance measurement system.

The former owners of the electrical networks, the Dutch *municipalities and provinces*, became shareholders of the companies, generally focusing on efficiency. Whereas the Office of Energy Regulation sets efficiency targets to limit profits, shareholders set out to preserve high profits. Next, municipalities and provinces play roles in spatial planning and in drawing up calamity plans as well as executing them.

In 2005, the *Dutch Safety Board* was established as a new national research council for safety. This board responds to major accidents, is involved in monitoring safety and may at times, for example, propose new instructions for mechanics. The *Labor Inspectorate* (‘Arbodienst’) is involved in workplace safety on a regular basis.

The *Ministry of Economic Affairs* (EZ) leads the reform of the energy industry. This ministry is further concerned with safety issues, long-term investments and with overseeing the Office of Energy Regulation. The *Ministry of Housing, Spatial Planning and the Environment* (VROM) sometimes plays a role related to environmental and safety issues.

4.3 SUMMARY

This short introduction described our three case-studies in the Dutch rail and electricity distribution industries. The recent institutional changes newly defined the network-based businesses and created a many-headed oversight environment around each business. So, each case-study organization deals with a multitude of oversight objectives simultaneously. Most of these objectives directly relate to public values. Other objectives, such as market regulation and return on investment, indirectly create conditions for the industry to serve the public interest. These oversight objectives daily materialize in the core operational process of the organization, as prepared by the planning department

and realized by the operational department. The way these, potentially competing, oversight objectives converge in the organizational processes forms the focus of our empirical study. Table 4.1 summarizes the three cases.

Table 4.1: Summary of the three case studies

Case	Profile
NS	Train operating company Core business: running trains, transporting passengers Operational department: NS Passengers Department Planning department: NS Commerce Department *Oversight objectives*: punctuality, personal security, availability of seats, provision of information services, tidiness, growth of passenger numbers, safety, affordability, non-discriminatory access for passengers with reduced mobility, accessibility of regions, consumer protection, capacity, return on investment, fair competition, interoperability
ProRail	Rail infrastructure manager Core business: traffic control Operational department: Traffic Control Department Planning department: Capacity Management Department *Oversight objectives*: quality of traffic control, quality of capacity distribution, quality of information, availability and reliability of rail infrastructure, efficiency, safety and security, environmental issues, tidiness and personal security at stations, non-discriminatory access
ENEXIS	Electricity network distribution company Core business: maintaining distribution networks Operational department: Infra Services Department Planning department: Asset Management Department *Oversight objectives*: affordability, efficiency, security of supply, power quality, safety, environmental issues, capacity, fair competition, return on investment

NOTE ON CHAPTER 4

[i] In 1995, the rail sector started a new calculation method in order to comply with a benchmark. The dip in 1995 and the following years in figure 4.2 would have been half the depth using the old method.

Chapter 5 Do the industries recognize value conflicts?

The start of our empirical research was a difficult phase, because at first we found few conflicts within the infrastructure companies. Based on theory (Chapter 2), we expected to find constant trade-offs among public values, but we hardly encountered any during the initial interviews. Most respondents seemed unable to articulate trade-offs among public values in their daily work.

Later, however, we discovered many conflicts. Even respondents that did not describe them at first appeared to be involved in many trade-offs without recognizing them. We revealed trade-offs from our interpretative perspective that respondents did not articulate as such. Combining our interviews and observations produced a long list of examples to illustrate unrecognized trade-offs, which are presented in this chapter. A concluding discussion section reflects on why these organizations fail to appreciate value conflicts.

5.1 Examples of unrecognized conflicts

Examples of conflicts are drawn from all three cases, the rail infrastructure manager, the train operating company and the electricity distribution company. Each example tells a story combining and interpreting various perceptions of organizational members. This section is to amply illustrate that many trade-offs occur yet go unrecognized within these organizations.

Example 1: "Always depart on time"

Trains are operated by a staff consisting of a driver and, usually, one or more conductors. At each station, conductors make a decision regarding the precise moment of departure. They usually signal to the driver that the train is ready to leave the platform. Frequently, this moment of departure implies a critical trade-off. Accepting a small delay for the passengers on the train may result in a direct gain for passengers who hope to transfer to the train, perhaps from a train that itself is late. In some cases, conductors disobey the organization's punctuality mandate, delaying a train to ensure a connection. Their decision to

wait potentially increases the overall performance of NS in terms of number of satisfied customers.

Yet the formal rule in the conductors' handbook is "always depart on time." Because of the increasingly dense use of the rail network and the tenacious problem of improving punctuality, NS has ordered all of its conductors to depart exactly on time. Trains must leave *on the dot* in order to reach the first measurement point near the end of the platform within 28 seconds of the planned departure. The idea behind this strict rule is to reduce the number of well-meant local departure time adjustments initiated by 'disobedient' conductors, since the sum of these many small disturbances might reduce punctuality performance at the system-wide level.

Previously, NS used detailed case-by-case scenarios to guide conductors' actions in pre-defined situations: when to depart, when to wait, and if to wait, for how long at most. Because this bulky system of if-then scenarios could not keep up with the dynamic variety of circumstances, the organization ceased efforts to formulate them. Nonetheless, the current practice of conductors, though not uniform, often remains to wait for a connecting train when they see this as appropriate.

Improvising conductors, however, do not perceive the full trade-off they are in. Besides the direct delay of their own train, a decision to wait has a broader impact. While the train waits, arriving trains cannot pull into the station. Other trains cannot depart because they share a crossing with the waiting train. The traffic control computer that prepares the signals is programmed on the basis of the timetable and expects the delayed train to leave. When the train does not leave as scheduled, unnecessary departure signals then block the paths of other trains that were planned to depart right after. Neither can traffic controllers, operating the departure signals in real time, easily step in, as they cannot see if and why a train is waiting. Traffic controllers experience only the consequences. They know neither whether anybody decided to wait nor who nor why.

> *"Either the train driver, the conductor or the NS Passengers Department decides to wait for passengers and blocks the station entrance and exit for several minutes."*
>
> Traffic controller at ProRail

Train drivers also experience conflicts, and are similarly unable to take in the full situation.

> *"Sometimes I stay put and then they [controllers from NS or ProRail] phone me: 'What is the matter?' Then I explain that we're helping a handicapped person get aboard or whatever it is. They phone you like crazy. They keep saying: 'Get it rolling!' They are stuck to protocols."*
> Train driver at NS

So, the trade-off involves many trains, as delayed trains indirectly delay others. Though experienced conductors understand these potential effects, they lack real-time information to verify the exact effects of a decision to wait in any specific case. This snowball effect is far beyond the perception of train staff as 'the instigator' of a growing disruption at the system level. The degree to which it will occur is at best an educated guess. Even in hindsight when experts use computer tools to replay the actual flow of trains, it remains often impossible to disentangle which train delayed which and why.

> *"If you go look at problems, it turns out to be very difficult to figure out exactly what the cause of a certain delay was. We usually don't even attempt it."*
> Transport control center analyst at NS

The current rule to depart on time ignores the fact that trade-offs are in fact made between punctuality, train connections for transferring passengers and many other values at stake. Conductors still make these trade-offs but without sufficient information to illuminate the full range of consequences of choosing either way.

Example 2: "Safety is priority zero"

Particularly in the electricity industry, safety is of absolute importance. While the technical design of the electricity system has considerably diminished the risks for users and people in public spaces, working with electricity remains dangerous. A few workers who maintain and repair electricity networks are hospitalized each year. Workers might come into contact with low or medium voltage when they forget to remove the ground. A spray of sparks might

surprise a worker doing repairs in an electricity substation. Many near-accidents happen, and sometimes a fatal accident occurs.

The head of ENEXIS recently declared safety as the pillar of the organization. Safety is the top priority, the director said, then issued a communiqué to that effect to the whole organization. One staff member spoke of safety as 'priority zero.' This bold assertion seems to deny any trade-off, but the only conceivable way for a network to be 100% safe would be not to provide any electricity at all. Nonetheless, this logic of priority zero took firm root, at least among the organization's planners and managers. Where safety is concerned, trade-offs are rule out.

> *"It is no problem at all to put safety above everything else always."*
> ENEXIS middle manager

> *"There is no discrepancy and there cannot be any discrepancy between safety and work pressure… You make no concessions on safety."*
> ENEXIS strategic manager

> *"Safety is a prerequisite."*
> ENEXIS employee

Some managers go that far to acknowledge 'tensions' between safety and other values, but they would reject speaking of safety in *conflict* with other values. That is not done, apparently. As we learned, talking about trade-offs can be a delicate matter. Yet, what does it mean when managers call safety an 'absolute prerequisite'? Operational workers appeared less eager to call it a 'prerequisite,' though their personal safety obviously was most important to them. A more nuanced and problematic notion of safety arises from interviews in operations.

- Safety is dynamic. What was considered safe 10 years ago is considered perilous today.
- Safety is subjective. Some operational workers think that the new safety instructions go too far. Some even prefer old, practical habits and appliances that they personally see as safest.
- In specific situations, some safety instructions appear unreasonable to workers. Time pressures, sometimes accompanied by financial penalties embedded in contracts with customers, are reasons to deviate from

particular details in the safety instructions that workers perceive as too time consuming in relation to the seemingly negligible gains in safety.

- Some safety instructions may work out contrarily. The Dutch Working Hours Act ('Arbeidstijdenwet' in Dutch), for example, prohibits employees from working more than 13 hours in one stretch. A field chief expressed that he prefers more flexibility in determining this limit. Stretching the limit just slightly could enable many disturbances to be solved faster and more safely, to his opinion.

  "When you are in the middle of a disturbance, the 13-hour limit is a nightmare. It is always at night and at some inconvenient point in time… A handover is often much more failure-sensitive. You sometimes forget to say something that later turns out to be crucial."
  ENEXIS chief in the field

- What is safe can be unsafe at the same time. Certain safety instructions might conflict with other safety rules. For example, a safety incident with a multiple-purpose device led to a preventive rule being issued to no longer use that device. One of the functions of the device, however, was to conduct a safety test on a cable. In this case the new safety rule shut the door to a previously established safety test. In another example, taking an impermissible safety risk may prevent a larger safety risk.

  "Sometimes doing nothing only increases the risks, forcing you to take certain safety risks. For example, you might have to turn off a gas tap in a room where you know that a lot of gas has escaped already."
  ENEXIS middle manager

Thus, managers themselves sketch an organization that always acts in the safest possible way. Trade-offs with safety are ruled out. However, various trade-offs on safety still occur for all kinds of reasons. In marginal cases, safety may even be abandoned as an absolute priority. In other cases, there might be no safe option.

Status as an 'absolute prerequisite' was profoundly visible for the value 'safety,' but not only for safety. Various ENEXIS employees talked about various other values that they pursue daily as being 'prerequisites.'

"Quality is a prerequisite."
ENEXIS employee

"Legality is a prerequisite."
ENEXIS employee

"The customer's whishes are law."
ENEXIS employee

Though our point has already been made, the examples go on. Trade-offs made in the drafting of safety instructions and protocols similarly go largely unrecognized. What trade-offs precede the formulation of these protocols? Though trade-offs are considered to be of secondary interest in the process of writing safety instructions, they do take place. The ENEXIS Heath, Safety and Environment Department recently announced a new system of safety protocols that would require a significant investment of money and employee time. The group of experts that worked out the details is highly devoted to safety. So, the new protocols are very detailed. For example, the distance to be maintained during a certain hazardous activity is calculated as the sum of a number of factors. The presence of each factor adds a number of centimeters to the required distance. Formal documents specify the ergonomic distance and uncertainty margin as 200 mm to 1,000 mm. No explicit organization-wide trade-off analysis preceded these new instructions though. Profiting from a recent decree of the director, the department was granted a great amount of freedom in this project. The employee time involved and the cost to train, retrain and monitor all of these new protocols appeared to be an unwelcome surprise for the Asset Management Department, which coordinates organization-wide trade-offs (Ch. 6). By their own calculations, the investment could by no means be considered cost-effective.

Thus, trade-offs between cost and safety do figure into development of work protocols, but they become hard for an organization to recognize when safety is dealt with in an isolated environment. In such a context, organizations risk gaining marginal increases in safety at the cost of something more valuable.

Example 3: "Control center [B] is dumping its trains without asking!"
At infrastructure manager ProRail, a large group of operators in control rooms geographically spread throughout the country and constantly survey and adjust flows of rail traffic in real time. These traffic controllers are crucial in establishing real-time 'resilience,' which is the ability of the system to keep going when disruptions occur. Disruptions happen all the time.

Local traffic controllers and regional network controllers practice their profession in more than 20 control rooms. All of these control rooms cooperate to uphold the continuity of traffic flow throughout the rail system. Yet conflicts arise, since operations are segmented into geographic areas. Continuity in one area can often be maintained by jeopardizing continuity in another area.

Our visits to traffic control rooms revealed many instances in which controllers hinder colleagues without knowing or saying so.

> *"What an unreliable #%@! We just talked about it and now he is planning in something that we just said is out of the question."*
> Network controller

> *"A network operator put in a goods path like it was a fast train. I understand it, because there's no space for that train otherwise. The train won't have a problem in my area, so I won't say anything about it."*
> Network controller

> *"What! I am already holding up my trains because [location A] has a problem, and control center [B] is dumping its trains without asking!"*
> Network controller

> *"A network operator had a slow train wait outside the station to prevent a fast train from being delayed, but doing that often causes delays."*
> Local traffic controller

> *"Another network operator just approved my request for a path without discussing it with his local traffic controllers. If later it turns out not to be possible after all, then he'll have to resolve the situation himself."*
> Network controller

> "*Some local traffic controllers want to let a train with a 20-minute delay go ahead anyway, but that might have country-wide consequences that the rail service directors can't oversee."*
> Network controller

Traffic controllers seldom recognize the full effects of their actions on colleagues. An often-heard complaint is that 'others' throw their problems 'over the fence.' On one side of the fence a problem is solved. On the other side a problem is created.

Example 4: "The consequences of developments over the next five years are structurally underestimated"

The complexity of the rail system is difficult to oversee for people and organizations within the rail industry, let alone those outside it. Many external organizations, however, constantly introduce new demands and developments without regard for the complexity of competing values. For example, the Minister of Transport suddenly granted priority to high-speed trains and the Inspectorate of Rail Transport requested more inspections of the tracks. Though desirable in themselves, these external demands risk inflicting trade-offs within the rail industry.

Painful trade-offs also occur when someone reports a suspicious package. The response of the local police and fire department might be to bring all traffic to a standstill for hours at one of the major stations (Kreling and Pama 2005). A staff member at ProRail labeled this trade-off cynically as 'their professionalism.'

> *"Now when there's a bomb threat you get the police and fire department deciding based on their professionalism to close down Utrecht Central Station for three hours."*
> Employee at the Traffic Control Department

The alarm may be false, but the effect is nonetheless immense. Complete disorder spreads over the rail system throughout the country in a disruption that cannot be remedied before the end of the day.

Police and fire departments have local agreements with ProRail. This means that each department makes its own judgment on what is 'safe.' The result is that some fire departments have a larger impact on the continuity of

rail traffic than others. The trade-off is out of ProRail's hands. But it is out of the hands of the fire department as well, since the fire departments have no incentive and no expertise to take train service into account when deciding on safety and security issues. Some fire departments, for example, decide not to use a certain 'safety tester,' despite the impact on many other values, because they consider it unsafe to use.

> "*Some fire departments consider it dangerous to use the safety tester to see if the electrical current is off the overhead contact wire. If the fire department doesn't want to use the safety tester, then they have to close off a longer area and will arrive later at a fire or incident.*"
> Employee at the Traffic Control Department

Central agreements have similar problems. The Ministry of Environment and the Ministry of Transport each have their own agreements with ProRail geared towards different public values. An environmental license has its own rules, independent of rules towards other values. Consequently, federal civil servants might deny ProRail a license on environmental grounds, without accounting for the consequences of their actions on attainment of other public values, such as costs or rail capacity. Again, it may be regarded as part of their professional ethos not to recognize trade-offs within the industry.

> *"A public official decides at some point that a permit cannot be issued on the basis of environmental factors. Then we can't live up to our concession. The official doesn't have anything to do with that."*
> Employee at the Traffic Control Department

At times, external demands, though formulated as 'absolute prerequisites,' appear fungible again in operations. The day-to-day pressure to keep the system up and running can overrule external pressures. Sometimes external pressures are simply fenced off from operations. But, in the meanwhile, trade-offs take place unremittingly.

> *"You have to be well aware of what legal developments there are and what the consequences are, but to a great extent, you don't know all those developments. How do you solve that? For example, somewhere we have to weigh noise into our capacity distribution. We try to ensure that in the*

> *scheduling, but at some point the noise space is gone. We can't then just close the operation down… So it doesn't get solved."*
> Employee at the Traffic Control Department

Finally, external pressures are dynamic. The consequences of new developments are hard to foresee, not only for the external organizations. Though operators and managers in daily operations see the consequences of new developments, they are ill equipped to predict future developments and their consequences. These trade-offs not only remain unrecognized outside but also within the network-based organization.

> *"Conflicts for us are that there are always many developments and possible options for handling them and we can't predict the consequences… Traffic Control is focused on today and tomorrow. The consequences of developments in five years are structurally underestimated."*
> Employee at the Traffic Control Department

Example 5: "We're squeezed by the safety-capacity-punctuality triangle"
In the rail industry, three values are particularly closely related. Capacity, punctuality and safety constantly win and lose at the cost of one another.

Capacity versus safety
In the area of tension between capacity and safety, trade-offs occur but prove rather difficult to address directly. Conflicts particularly appear in operations.

> *"Contradictions at the executive or management level can be the reason that you get an accident at the operational level… The policy level wants to have a whole lot of trains riding close to one another, even the Ministry. With us in Traffic Control that conflicts with safety. Those conflicts show up in the operation… For managers the contradictory objectives are not a problem, because they don't pay attention to them."*
> Employee at the Traffic Control Department

A pillar of rail safety is that train drivers see and act upon a red signal. Risks arise when drivers miss a red signal. To warn the driver, the signal one section before the red signal is set to yellow. As the capacity becomes more and more utilized over the years, drivers encounter increasing numbers of yellow signals.

The urgency of this warning signal may then be undermined while the actual risk increases. An NS employee addresses concerns about these unforeseen interdependencies between capacity and safety and the incremental trade-offs. It is important to note that these concerns are expressed in 2007. Since then, many safety measures have been undertaken and seemed successful (Ch. 8).

> *"Because the trains are put closer to one another, we are riding more on yellow. If you leave station [C], then you see five, six yellow signals in a row as a train driver. Then you get an expectation pattern as train driver that the next one will also be yellow and once you get on the free track it will be green. Yellow. Yellow. Yellow. And then suddenly: Red. And then you get into trouble. That is why yellow leads to an increase in the number of red signal passages. Because of the devaluation of yellow. You can look at what you can do about it. But multiple yellow signals following one another really has to do with the capacity… It's precisely because safety is so implicit, that it hangs above the negations and safety is not incorporated into the compromises. But if you do agree to operate with a certain number of trains and to strive for a certain degree of punctuality, then you cannot substantially reduce the number of red signal passages… I think you have to weigh safety in the negotiations with the government. That discussion about trade-offs becomes clear if you include safety instead of the implicit pressure from outside… Then the minister has to accept that a residual risk remains and that is political suicide."*
> NS employee

It appears inconvenient for ProRail as well, to address this trade-off between capacity and safety. For quite some respondents at ProRail, a fact of life is that the technical signal system safeguards safety satisfactorily. The human factor of the train drivers is not an intricate part of the design, though; and train drivers do not work for ProRail. Therefore, as the demand for capacity rises, ProRail faces few incentives and has a weak argument in saying that the system becomes less safe.

> *"Technical people don't take the risk of red signal passages into consideration. If the transport companies constantly want to have as many trains as possible on the line, there is no natural point to say that our security doesn't work perfectly. Is red really red? Or a little less red?"*
> ProRail employee

In the meanwhile, NS faces the increasing demand that its drivers not fail to see a red signal. Indeed, maximizing rail capacity seemed to cause more red signals for the drivers in case of disturbances: as the numbers of train kilometers grew from 132 million in 2002 to 146 million in 2008 (ProRail 2006, 2008) and the number of trains passing a red signal increased by approximately 70% since 1996, for all thirty train operating companies together (IVW 2008b). Despite this increased risk to pass red signals, the police, the *Korps landelijke politiediensten* (KLPD), routinely took a hard line towards failing train drivers and criminally prosecuted them. This attitude of the KLPD caused unrest among train drivers as well as increasingly cautious driving behavior, NS employees described. This driving behavior, in turn, is said to have a significant impact on punctuality again. Since 2007, the attitude of the KLPD and its impact mitigated as the relation with NS grew more trustful.

Simultaneously, another oversight body studies these safety risks. Based on a few incidents, the Inspectorate for Rail Transport (2008) recently urged ProRail and NS to improve their use of yellow signals, particularly for trains departing from a platform. In their report, the inspectorate called for extra norms for safety as a back up for what now is safeguarded in 'professional skills' only. Accordingly, the rail industry started to prohibit trains to depart on yellow signals in risky situations, though these new procedures might again occupy more capacity. Other safety measures that have been initiated are an alertness test and a training simulation center for train drivers and a technical system called *ATB-Vv* that automatically stops trains passing a red signal for all speeds.

The Netherlands already has the busiest rail network in European Union, more than two times the European average of train kilometers per rail kilometer (CBS 2009). The ambition is to grow with another 10% in the coming 4 years (ProRail 2008). This unique performance does not pass by the interdependencies between capacity and safety, but a salvo of safety measures may compensate for possible adverse effects.

Punctuality versus safety

The issues at play for ProRail in the area of tension between safety and capacity, also play a role for NS in the tension between safety and punctuality. This latter tension was recently underlined with the introduction of a new departure procedure for passenger trains. This new safety rule turned out to have a considerable impact on punctuality (BCG 2005). The new procedure

mandated trains depart with closed doors instead of one open door. This extra maneuver took just a few seconds, but the impact on overall punctuality of all these tiny departure delays during the day accumulated to a more considerable impact. NS and the Ministry of Transport responded in the media as follows:

> *"More safety for boarding and deboarding cost the company 1.5% in punctuality… The new boarding and deboarding rule was implemented after incidents and near-accidents with passengers who had jumped onto a moving train via the conductor's door, which is closed last. The Transport and Water Management Inspectorate now requires that door also be closed before the driver departs. [Spokesperson NS]: 'The estimate was that this measure would have minimal repercussions for the timetable. Anyway, much less than it turned out to be.' … The memo from the Directorate General for Passenger Transportation even has doubts about the value of the operation. 'We sacrificed a lot of capacity to prevent an accident for people who don't hear the whistle. There are more effective measures conceivable for that.'"*
> *(Trommelen 2006)*

The magnitude of the trade-off surprised the industry as well. An NS employee working on punctuality issues explained:

> "*The departure procedure has changed. Now every stop takes six seconds longer. Because of this we've dropped nationally from 86.0% to 84.5% due to those six seconds. That is difficult to predict beforehand. It is a sum total of little delays. SIMONE is a system that calculates those effects, but SIMONE didn't show this."*
> NS employee

The solution to the unexpected impact of this extra safety rule was to plan in extra margins. Thus, the impact of a safety intervention is transferred via punctuality to capacity again.

Very recently, in May 2009, an accident occurred in Belgium where train conductors are still allowed to depart with one door open, to enhance punctuality. As a man tried to force his way in the doorway while the train was departing, the passenger and the train conductor ended up between the train and the platform with catastrophic consequences. The passenger lost a foot. The conductor lost two legs and his life a few days after.

Punctuality versus capacity

On the third side of the triangle is the tension between punctuality and capacity. Each year, capacity is planned for the coming year. Usually, the previous year's timetable is adapted, but sometimes an entirely new timetable must be developed. At the end of 2006, NS changed to a new timetable design. An urgent goal at that time was to improve punctuality by increasing the resilience of the system. Improving system resilience, however, runs counter to the desire to maximize the number of planned trains. Experience shows that using the rail network at near-maximum capacity reduces the ability to restore train services to schedule after small irregularities. This in turn significantly affects punctuality performance. Improvements of system resilience with a particular timetable design decrease over time, as stakeholders seize on a myriad of small opportunities to gain an extra minute, an extra stop, an extra train or an extra station. As a result, system resilience gradually erodes until NS decides to restore resilience with a new timetable design.

So, the value conflict between the number of trains, capacity and resilience, influencing punctuality performance (see Figure 5.1), tends to be avoided. Again and again, separate initiatives for the various values follow one another and counteract one another over time.

Figure 5.1: The dilemma between punctuality and capacity: few punctual trains on the left or many delayed trains on the right (photos: Schonewille)

Example 6: "We saw no risks in our objective information"

Returning to the occupational safety of workers in the electricity distribution company, a chance event provoked a strategic study of the risk of 'open systems' a few years ago. Open systems are located within electricity substations. In response to the incident, in which a representative of an oversight body stumbled in a room with open systems, the director assigned a project leader to analyze the underlying risk and to design a package of countermeasures. The project carried out some 100 interviews to learn about the risks of open systems. In the end, it recommended replacing a large number of these systems over a three-year period. The costs were some €10 million with correspondingly significant claims on workloads. A significant trade-off was made.

On the plus side an answer was found to the question of how safe open systems are. The objective answer, based on safety reports, seemed to deny the existence of any risk. Though one fatal incident was known, the risk was nonetheless considered small. Theory would predict that the fatal incident would be the top of a 'pyramid' of near-accidents. Yet this did not seem to be the case, as near-accidents had hardly been reported. Interviews carried out in the course of the project revealed many near-accidents had previously not been noticed or reported.

Yet this risk analysis did not gain full clarity. The project leader explains:

> *"We found that workers think differently about safety. The majority of older workers think open systems are the safest of all. The majority of newer workers think all open systems should be rigorously replaced."*
> ENEXIS Employee

Some workers indicated that safety would benefit more from other investments. Some even considered open systems safer than the new closed ones. It was up to experts at the strategic level to incorporate these deviating personal impressions of safety to reach a single judgment.

This project set out to assess the sum total of trade-offs at stake. It explicitly calculated the risk of a fatal accident and compared it with other risks to product quality and efficiency. However, the way this trade-off actually came about remains troublesome for at least three reasons. First of all, this trade-off was triggered by a chance event. The danger went unrecognized for

many years. So, acknowledging this risk and the trade-off that followed were essentially part of a Pavlovian response.

Second, the open system project approached its claim on workload, more or less, as a blank check. Personnel is scarce and in personnel planning, replacing open systems directly competes with many other activities, such as replacements, maintenance and inspections. According to workers, the current workload already leads them to 'compromise' on important aspects of their jobs and their working conditions. The assessment of this trade-off, however, did not take into consideration the limited availability of employee hours.

Third and finally, the overall effectuation of the investment in occupational safety remained invisible, even in hindsight, both in terms of the actual increase in safety attained as well as the effects of investments that were sacrificed to produce it. It must be said that the project was very thorough and very trade-off minded, but the feedback loop to evaluate the overall effectuation of the prioritized policies was still under development at the time of our research.

Example 7: "You keep your distance to organization-wide trade-offs"

Large investments and major improvements are often made in innovation processes. Two recent innovations at ProRail are its centralized, re-bundled operational control room and a new information device to give train divers real-time insight into the situation on the tracks kilometers ahead. Both project leaders say that these innovations do not and should not clearly address a concrete problem or a fully transparent trade-off.

> *"A management tactic was to cut the innovation project lose from temporary priorities. At the beginning of my latest project, punctuality had priority, now it is safety. The carry-through times of projects are too long to focus on a concrete problem… The risk is that the organizational support evaporates along the way as priorities change. Therefore, I choose not to frame my innovation as a solution to problems… As innovator you keep your distance to organization-wide trade-offs. They are too complex."*
> Project manager at ProRail

> *"At the beginning [of an innovative project], you don't aim for key performance indicators. What you do aim for is unclear. Eventually the investments need to raise key performance figures, but it starts with 'faith' in*

improvement. Essential for us is that the Operations Control Center Rail [a major new process innovation] gives operators 'the feeling' that it optimizes current processes."
Project manager at ProRail

Example 8: "You see an enormous imbalance in the things specified"
For a staff member at NS overseeing train cleaning and maintenance, lack of information leads to difficulties in simultaneously considering both costs and quality. Costs are operationalized in a very detailed way, as cost information is based on individual cleaning activities rather than on the final overall performance. In this case, the manager drops consideration of the costs and takes a mono-value approach to quality.

"The weighing with costs is not specified. Costs for cleaning are given, but then again not. A set amount was determined at some point. A number of items are mentioned but those are comparable efforts. There you see an enormous imbalance in the things specified… To get on top of the costs is difficult. I have more confidence in aiming for cleanliness. [The respondent immediately continued with an example on maintenance.] At one company, track maintenance is a little more expensive than at another. That already is beyond me. A gearwheel overhaul is €80.90 and a wheel overhaul is €89.90. What am I supposed to do with that? We pay them for what they do and not for the end result… As to the hourly rates, I don't aim for that at all. I'd like to be done with those."
NS employee

Example 9: "Wait a minute… that wasn't the idea!"
The halls of major railway stations house a multitude of businesses that cater to the daily needs of transferring passengers. Managers of cafés, bookshops, delicatessen, exchange offices, supermarkets, kiosks and many others compete for the best locations. Generally, central sites are most valued. In a negotiation process, these sites are awarded to particular shops and services. As a result of a trade-off, a supermarket won the prime location at a major rail station, meaning the ticket office was moved to a less central area. The supermarket had simply outbid its rivals. Commercial interests, in this case, seem to have dashed the public interest.

> *"The Ministry of Transport challenged us on this. 'Wait a minute,' [they said]… 'That wasn't the idea!'"*
> NS employee

Two separate NS representatives took part in the negotiation process. Both spoke for different interests within NS. One representative, that from the NS Station Management Department, aimed to maximize space rental revenues. These revenues are quite substantial and a welcome compensation for the less profitable core task of bringing passengers from A to B. The second representative, from the NS Tickets and Services Department, is responsible for the quality of ticketing and service provision at stations.

We identify service quality with regard to ticketing as public value related, since NS has agreed with the Ministry of Transport to provide a certain level of quality in its services. Revenue perhaps could be regarded as a public value, because the Ministry of Finance, as an NS shareholder, requires a certain return on investments of public money. Even the commercial interests of supermarkets in this case might be regarded as a public value, although this is not policy. In fact, far more customers use the supermarket than the ticket office, and NS could simultaneously reduce its service that provides drinks and snacks in trains. Between these values, the process of awarding sites embodies a value conflict. The question is how much revenue is worth what quality of ticketing and service at stations.

During the negotiation process to award sites, these values run practically head to head. Preceding this process, however, NS had already determined a budget for the Ticketing and Services Department. At that point, however, the organization did not foresee the resources that would be needed to claim the prime location in the remodeled stations. During the bidding, the Ticketing and Services Department faced a budget quandary. How much could it bid for a site? Among the considerations were that service quality would depend on things besides the placement. Budget not spent on a central location could be spent on, for example, extra personnel or extra ticket counters. In the meanwhile, the Station Management Department recognized no conflict between commercial interests and public interests. It mainly maximized its revenue. So, in the whole process, NS did not actually face the value conflict, though the conflict was very much in evidence. Rather, an implicit trade-off occurred.

In hindsight, NS sees this case as a learning experience. A staff member explained that service quality should have had a firmer position in the process, and more explicit criteria and improved definitions should be provided. The NS employee continued that special arrangements should have been made between the organizational departments before the bidding began, to safeguard service quality in the negotiation process to award locations. This solution would specify conditions and demarcate future practices in advance to guarantee a basic level of quality. Though practitioners continuously put such strategies in place to improve organizations, they fail to address the underlying value conflict. The magnitude of commercial interests, for example, reveals themselves only in the bidding process, and not in advance. In fact, it was this same 'protective attitude' that prompted NS to entrust service quality at the stations to a specialized subdivision. As this example shows, this common strategy was the very cause of the failure to recognize the value conflict in the first place.

5.2 Discussion

This list of examples illustrates a plain and rather alarming observation: Many conflicts concerning public values remain unrecognized, mostly veiled as they are in action. Given the literature on utility maximizing agents (Ch. 2), this is surprising. We expected that significant trade-offs would automatically betray their presence because organizations would constantly seek to enhance their own utility. Again and again, this does not seem to happen, at least not explicitly, complicating our understanding of how public values are actually safeguarded and optimized

In this section, we emphasize that the inability to recognize trade-offs appeared systematic. Subsequently, we discuss several possible explanations.

Ultimately, we could not have studied these day-to-day trade-offs only on the basis of what people said they did. In our interviews, we sometimes asked respondents directly to describe the trade-offs involved in their daily work. Respondents generally found this a 'strange' or 'difficult' question. Many ignored or avoided the question all together. They said things like "we do the best we can and stick to the agreements." Others began to list general priorities or to describe their main task. For example, "We see if the norm is being met and if not we indicate that." Operational workers generally described trade-offs in the form of "*if* this is the situation, *then* I do [such and such],"

naming neither values nor consequences. They often felt deprived of the ability to make any trade-offs at all.

When some few managers, planners and other employees finally arrived at concrete examples of conflicts during the interviews, the point of the story was frequently that the actual trade-offs were settled elsewhere. Then they described how a small circle of experts "reached consensus" via many iteration loops during meetings and other forms of interaction. In retrospect, these trade-offs generally proved hard to reconstruct. Another often-heard answer, rather at odds with responses to our direct question on trade-offs, described how repressed values were specially safeguarded or received extra attention. Particularly managers describe their daily achievements from the perspective of single values. "We just optimize [value X]" and "we prioritize [value Y]", they smoothly explain.

By a roundabout way, we succeeded in gathering abundant data on everyday trade-offs by asking a series of indirect questions (Ch. 3). This frequently triggered a stream of anecdotes containing valuable data, but we only revealed most trade-offs by reflecting on interviews and linking them together and to our observations.

So, there was much to read about trade-offs in scientific and other literature, but most of the trade-offs revealed themselves in practice only when we used our interpretative perspective. It almost seems as if trade-offs only exist conceptually. In practice, respondents structurally do not recognize their daily trade-offs as decisions.

Next, this apparent inadequacy might have reasonable explanations. Perhaps this is because trade-offs are embedded in routines. It might be generally hard for a person to explain why they do what they have been doing for 15 years or more. Stewart (2006, p. 191) notes, "the dominant value orientation" of network-based organizations, for example, "can seem truly invisible from the 'inside' because it is totally taken for granted." Instead of using formulas to weigh competing values, many respondents could be 'thinking-in-action,' as Schön (1983) describes it, when coping with conflicts, as we will elaborate on in Chapter 7.

Bounded rationality may also be a reason why trade-offs remain unrecognized. Many respondents have a limited view on the consequences they induce because of the division of labor within the organizations. Indeed, we came across this opaqueness in the examples above. In the following empirical chapters we further differentiate between values and processes.

Another reason why trade-offs are invisible might be that conflicts are taboo in a general sense (Tetlock 2000, p. 262). In dialogues with practitioners on our findings we quickly came to understand as researchers that literally using the word 'conflict' is not appropriate, even if it describes the actual situation. Practitioners repeatedly asked us to replace the word 'conflict' in our internal memos if possible with milder and less alarming wordings. Many managers seemed to presume that any defensible management system should at least be conflict free. As if identifying conflicts would always require an adaptation of the current system. So, perhaps the constant pressure for excellent performance and the transaction costs of redesigning the organization holds perverse incentives to deny conflicts.

In other words, the reluctant answers on trade-offs might be due to respondents' efforts to camouflage their deviant behavior. Respondents might strategically refuse to explicate their trade-offs, because they do not want to be held accountable for them. Workers might veil the conflicts they face in their daily work for fear they might get fired. During the interviews, however, this explanation was often contradicted. The flow of anecdotes we heard in most interviews indicated rather few barriers to talk about sensitive issues. Many respondents passionately expressed their personal ideas and showed how they practiced them, though they often contradicted official policies and their managers. So, other reasons probably explain why the industries find it so difficult to recognize the trade-offs they produce.

It is perhaps not even unexpected that organizations fail to see their own trade-offs. After all, a trade-off is not a physical object. Yet many central concepts in the mammoth of decision-making literature are invisible. 'Power', 'authority' and 'decisions', for example, are all abstract constructions and prove quite difficult to *observe* without imposing self-assuring concepts to reality. Likewise, principal-agent scholars constantly study 'hidden action' and 'hidden information.' We have 'the invisible hand of markets,' 'discretion,' 'tacit knowledge,' 'complexity' and 'strategic behavior,' all groping after concealed mechanisms. The invisibility of central concepts appears almost cliché in the decision-making literature. Indeed, concepts tend to become more interesting when nobody can really describe them.

Still, the relative invisibility of trade-offs as a concept does not explain the inability of many respondents to talk about them. Other similarly invisible concepts, for example 'decisions,' are also hard to pinpoint but still would make a much more convenient subject to talk about. Thus, the pervasive

implicitness of trade-offs is not yet fully explained. Apparently, trade-offs are particularly intangible and difficult for organizations to deal with explicitly. Indeed, we see how trade-offs systematically tend to dissolve in organizations. As a consequence, many trade-offs may happen unanticipated, displace to later phases, diffuse over many tasks and eventually disappear out of sight for all organizational members.

So, the main finding of this chapter gives rise to the analytical puzzle what hides these trade-offs when it is not the organization behaving strategically and what kind of trade-offs result. Therefore, the following three chapters systematically verify how network-based organizations cope with competing interests simultaneously in three of their organizational processes, namely planning, operations and managerial oversight. Chapter 6 starts by describing the strategic planning tools that might direct or anticipate these ‘unrecognized trade-offs’ in advance.

Chapter 6 Coping in the planning process

The previous chapter showed how network-based organizations fail to recognize certain conflicts between public values in the daily management of utility services. To further examine this finding, we verify how the prioritization of values is organized in the strategic planning departments of these organizations. Our first respondents directly connected our research interest to this strategic level and its central planning tools dealing with many oversight objectives simultaneously. “Priorities need to be established on a high level,” a strategic manager explains.

Indeed, the integrated perspective of planning systems systematically plans for many trade-offs among public values, regularly organized on a yearly basis. Major trade-offs concerning budget, capacity and other means are considered in this process. At the same time, however, many detailed value conflicts remain unaddressed as strategic managers and planners further specify protocols and instructions for each value separately. Following this separate operationalization of many values, we encounter how conflicts are structurally organized out of the planning process and, in effect, displace to the operational process.

This chapter first introduces the central planning processes in each case-study. The organizational set-up to coordinate trade-offs in advance is discussed. Later, drawing on the coping framework (Chapter 2), we come to understand that planning processes systematically but implicitly decouple conflicts. This provides a first explanation for the many unrecognized conflicts we encountered in these organizations.

6.1 CENTRAL PLANNING SYSTEMS

The three central planning systems, corresponding with the three core operational processes (Ch. 4), are distributing rail network capacity at ProRail, performance management at NS and risk assessments at ENEXIS. All three planning systems set out to cope with a carefully selected set of values in an integral way. Interestingly, in each organization these three planning systems have recently been renewed and still go through a transition phase. We now

generally describe the current planning practices and touch upon some shortcomings with regard to their high ambitions.

PERFORMANCE MANAGEMENT AT NS TO "STEER ON THE BASIS OF OUTPUT"

The Ministry of Transport mandated NS in the 2004 franchise agreement to develop a strategic planning tool to "steer on the basis of output performance measures." One reason the ministry wanted such a tool was to facilitate external accountability in response to the notorious 'crisis year' 2001 when NS performance suddenly dropped dramatically.

This annual strategic planning system specifies key performance indicators and standards related to five values: riding on time (punctuality), personal security of passengers and crew, reasonable availability of seats, cleanliness of trains and stations and adequate information and service for passengers. Additionally, three other values were mentioned, though without specific operationalization or standards. These are accessibility of cities and regions, growth in passenger numbers and accessibility for passengers with reduced mobility. Safety is not mentioned in the franchise agreement.

Each year, NS draws up a transportation plan ('Vervoersplan' in Dutch) proposing performance standards for all of the key performance indicators in the coming years. These standards are discussed in advance with consumer organizations for later approval by the Ministry of Transport.

The standards are generally required to increase annually. Accordingly, NS constantly develops measures and instructions to improve its performance and to account for its efforts to do so. These same standards serve as inputs for the company's yearly performance monitoring by managers. Thus these performance incentives seep from the franchise agreement down through the management echelons of the organization.

Establishment of multiple performance standards (implicitly) claims to determine the trade-offs ultimately made between the five specified values at the system level, though the ambition to improve yearly on all points suggests there are no major trade-offs to consider. The standards come about in a rather unstructured process. First, expert judgments are made about expectations, based on past performance, estimating the influence of new circumstances. Then, many iterations start between various decision makers within and outside NS. After all, the performance management system concerns not one central resource but rather many resources, such as budget, locomotive and carriage capacity, rail capacity and personnel, that must be distributed over the different

performance standards. Iterations are apparently necessary because there is not one person who oversees this complex puzzle of distributing resources.

Formally, the controls associated with performance management address the multiple aspects of performance separately without looking into their many possible interdependencies in operations. Consideration of where trade-offs are necessary and possible is informal. The performance management system is not specifically equipped to foresee these trade-offs. Many unforeseen trade-offs emerge in the technical details of concrete situations, though, as we will see.

CAPACITY DISTRIBUTION AT PRORAIL FOR "A CONFLICT-FREE PLANNING"

The Capacity Management Department of rail infrastructure manager ProRail yearly delivers a conflict-free timetable. 'Conflict free' means to them that no train should have to wait for another train, if all trains ride at 100% punctuality.

In the current situation, rail capacity is a critical, expensive and currently overstrained resource. Therefore, distributing capacity involves a multitude of competing interests which are difficult to weigh: those of train operating companies and their customers, safety, maintenance, maximum utilization of capacity, continuity of rail traffic during disturbances, environmental issues and non-discriminatory access of train companies to the rails. Many of these values have associated rules, norms and dedicated oversight bodies. Next, the planning process takes place in close cooperation with multiple train operating companies.

Rail capacity is technically complex as well. During the planning process, rail capacity is in constant flux because of the many interdependent variables. The type and quality of the train product, for example, has a large impact on the available rail capacity. If trains follow each other at different speeds, this can halve the available capacity (Koolstra 2001, p. 100). Furthermore, rail capacity depends on the capacity of stations, and vice versa. The capacity of stations is complex too, depending on the number of departures and arrivals per minute, the configuration, the type and the number of switches, so the ability to maneuver, the length of platforms, the behavior of passengers and many other factors. Moreover, the train punctuality attained, the number of drop outs and the entity being transported further determine the need for as well as the availability of capacity for both rails and stations.

Before arranging trade-offs, the planning process imposes a few basic prerequisites. For example, the freight transport market must have a minimum of two paths every hour. Passengers must have a minimum of two trains per

station during peak hours and one train during off-peak hours. The remaining capacity is open for discussion and further optimization.

The first and largest contribution to this discussion is the draft timetable submitted by NS, the former state monopolist. This draft contains a multitude of provisional planning decisions and trade-offs between the interests of NS and those of many other stakeholders. The complexity of timetable planning, however, precludes the process from being a fully transparent one. A planner at NS explains:

> *"Planners make instinctive decisions. You cannot work them out. Just hope they do the right thing. If you were to map all our decisions, you would get thousands a day… Nobody dares say whether the current timetable is optimal. At a certain point, the board decides between several alternatives, but the effects of all those choices don't appear until a later phase."*
> NS planner

Both before and after this first timetable draft, negotiations among the parties are the basic means of decision making. At ProRail, planners explain the procedure as one of fully considering each reasonable alternative that is raised. Every new planning decision is carefully reconsidered in light of alternative routings and timing. The limitation, however, is that many structural decisions have already been made in the NS timetable. Thus, attempts are made to fit extra demands into that existing structure, shifting previously arranged trade-offs in a complex web of tightly interwoven interests. Decisions on these amassing and interdependent trade-offs can never be fully transparent.

If stakeholders cannot reach informal consensus on the planning details, which seldom occurs, business cases are drawn up to discover the most economically profitable train scheduling. ProRail planners use this means of conflict resolution as a last resort, because it is not perceived as a desirable standard procedure. Addressing conflicts in economic terms is considered to be structurally disadvantageous for the train operating companies.

In such a business case, ProRail makes the various interests of the train operating companies explicit and the trade-offs transparent, as the Rail Law prescribes, to distribute capacity fairly. As a consequence, trade-offs seem to shift, sometimes even against the will of the planners involved in the process. A focus on costs often fails to produce "the most optimal choice," according to the planners. From an economic point of view, for example, it is much better to

plan maintenance activities for a full week instead of many weekends and nights. Thus, optimizing maintenance is more profitable than minimizing the hinder experienced by train operating companies. But to meet the interests of the train operating companies, and the implicit customer interests, planners regularly refrain from making comparisons of interests perfectly transparent and objective in economic terms.

This decision-making process is currently undergoing major transformation. The current form is a combination of old and new. There is still the old informal way, talking things over, which is found to be increasingly inadequate due to the growing desire for transparency and economic rationality. Over time, trade-offs tend to be decided less by an in-crowd of experts and are gradually becoming more formalized and businesslike.

The idea is to satisfy all demands in the planning phase. In principle, the schedule is only final after all parties agree, but after the 'conflict-free' outset, new value conflicts keep emerging. New or adjusted capacity demands, insights and conflict situations perpetually develop and change during the planning phase, right up to its finalization in real time. Even afterwards, the planning process goes on as experiences in operations constantly trigger minor scheduling revisions.

A VALUE MATRIX AT ENEXIS TO "COMPARE APPLES AND ORANGES"

Electricity distribution company ENEXIS calculates risks related to a comprehensive set of values in an arithmetically skilled way. The values in the matrix are safety, product quality, economics/finance, lawfulness and, recently added, reputation and sustainability. These values seamlessly cover the most important objectives of oversight bodies in their environment. Each value is expressed on a monetary scale to make them commensurate with one another. Thus, the matrix weighs the number of accidents against the total minutes of supply interruption. The number of lost legal cases is compared to uproar or consternation about the company in the media. Next, the severity of incidents combined with the probability or frequency of such an event indicates the level of urgency a problem is accorded (Table 5.1).

The focus of this planning instrument is comparisons between values, not the exact estimation of a monetary value per possible incident. The ratios between values were carefully developed in a long process with many iterative adjustments involving many experts. This process may probably continue in the future.

Table 5.1: Risk matrix of ENEXIS indicating levels of urgency (Wijnia 2008). The capital letters to the right refer to the categorization of the risk as Negligible, Low, Medium, High, Very High or Unacceptable. CML means 'customer minute lost.' Three values illustrate.

				Unlikely	Possible	Probable	Frequent	Often	Very often
	Financial	Safety	Reliability	<0.01	0.01-0.1	0.1-1	1-10	10-100	>=100
Catastrophic	> 10 M	Multiple fatalities	> 20 M CML	M	H	VH	U	U	U
Serious	1-10 M	Fatality, invalidity	2-20 M CML	N	M	H	VH	U	U
Significant	0.1-1 M	Serious injury	0.2-2 M CML	N	N	M	H	VH	U
Moderate	10-100k	Lost time incident	20-200k CML	N	N	N	M	H	VH
Small	1-10k	Near miss	2-20 CML	N	N	N	N	M	H
Negligible	<1k	Dangerous situation	<2k CML	N	N	N	N	N	M

The value matrix is used to draw up the yearly work package, studying whether to replace assets sooner or later, to do more or less maintenance and for special projects to select the most urgent risks and to identify the most cost effective remedies. Planners generate a long list of risks. Each risk consists of a probability of occurrence and an impact. The available budget determines where the line is drawn on the list. In the future, each ENEXIS work instruction and performance measure could theoretically be calculated in terms of risks, compared and ranked in importance. For the time being, though, the capacity to do all these risk analyses is limited.

The matrix has generally high status among managers. Some describe the matrix as an "objective" and "value-free" methodology to make trade-offs.

The matrix has limitations, and possibilities to improve, as well. For example, input and output of the matrix is currently oriented towards work

flows, as was the old planning system, instead of values. Therefore, the matrix does not yet produce an overview that would enable to compare the total resources spent on each value. Another limitation is that the matrix depends on data which reduce the values to a brief set of quantitative figures. Actual data, for example on accidents, however, is scarce. When accidents do occur, risks may suddenly become visible and give rise to new priorities, as discussed in Chapter 5. Next, various qualitative aspects of values may remain outside the matrix, such as power quality, customer satisfaction and the many resources that are difficult to count. The matrix focuses particularly on budgetary trade-offs and considers other resources less, such as the capacity of personnel for example. Moreover, the matrix is not the company's only planning tool. Investments in some departments or at the board level may stay outside the matrix (Ch. 5). Nonetheless, the value matrix appears a highly advanced approach to anticipate trade-offs between public values.

INTERIM CONCLUSION

These three planning systems generally give rise to a yearly package of strategic decisions that, in the terminology of our framework (Ch. 2), 'deliberately couple' in response to competing values. This coping practice involves major trade-offs or a demarcation of major trade-offs beforehand with concern to major strategic resources. Strikingly, all three planning systems recently underwent far-reaching developments towards more precise measures and more scientific procedures. The actual trade-offs often tend to remain rather pragmatic, though, within the domain of experts, sometimes highly informal, incrementally shifting emphasis between critical activities. Moreover, these three systems generally seem to work without an integral overview of which resources go to which values, neither beforehand nor afterwards, though such an overview seems basic to a cost-benefit evaluation of plans. At the same time, the possibility of many detailed conflicts remains unaddressed due to the necessarily abstractions in this planning phase. These central planning systems are not based on an understanding of how multiple values actually converge in the details of practice.

Complementary to this yearly cycle of major strategic decisions, the same oversight objectives are also dealt with on a more continuous, sometimes ad hoc, basis spread over many departments and tasks. New values and new conflicts appear in 'lower' planning practices. The next section describes how

strategic managers, planners and staff members further work towards the realization of multiple values in addition to the yearly planning cycle.

6.2 PLANNING AS DECOUPLING

Besides the yearly cycle of strategic planning decisions, strategic managers, planners and their staff continuously generate specifications and adjustments to the yearly planning. On one hand, priorities, as established in the annual plan, need to be worked out in detailed plans and procedures by lower level planners. On the other hand, extra values and resources may be added to the process on this level. Values also may slightly change in emphasis, as they proceed towards their operationalization.

In general, multiple values are separately organized in this part of the planning process. Accordingly, the coping mechanism completely differs from the yearly strategic planning decisions. Operationalizing multiple values into norms and instructions forms a 'decoupled' coping mechanism.

We distinguish and discuss two decoupling mechanisms. First, 'institutional decoupling' allocates values to specialized departments and tasks, isolating planning processes from each other. A second mechanism is to 'harden' single values into norms and instructions. The intention of both types is to grid a value to survive possible conflicts. As a result, however, the eventual trade-offs tend to remain unaddressed.

ISOLATING VALUES: "OUR TARGET IS 5% EFFICIENCY… QUALITY IS NOT MY CONCERN"

A common coping strategy is to spread planning for multiple values over multiple tasks. "Decoupling processes have been the basic management strategy for decades," a former NS director explains. Institutional decoupling, or compartmentalization, isolates competing values from one another. Indeed, this is generally regarded a basic organizing necessity (Mintzberg 1983). We interpret institutional decoupling as widespread coping behavior. The number of examples found in this research was overwhelming. The effects of the strategy are diverse.

Task versus task

Many interviewed managers and staff in the planning department appeared fully dedicated to single aspects. NS, for example, appoints separate managers for the availability of rolling stock, cleaning rolling stock, safety, the personal security of crew and passengers, accessibility, information, punctuality and even for various *aspects of* punctuality.

The same goes for specialized departments. Besides the main strategic and operational departments, ENEXIS has a separate department for health, safety and environment and a new department responsible for the quality of the network. Likewise, NS has three specialized departments on safety. One department oversees rail safety. Another oversees the safety of crew and passengers. A third specializes in the safety of rolling stock.

Within ProRail safety is fragmentized over multiple units as well. There is a department for rail safety at the Traffic Control Department, separate from the Capacity Management Department, although safety issues are quite closely related to capacity issues as the rail network gets busier (Ch. 5). Consequently, all departments make their own risk analyses without structural comparison to the other risks. Of course, there are informal contacts and formal platforms to explore the associations. Only ENEXIS structurally facilitates such overall comparisons, in its integral risk matrix.

At ENEXIS, multiple values are decoupled and allocated to separate departments. The Asset Management Department specifies the quality of procedures. The operational branch must comply with these specifications and then optimize efficiency. Customer satisfaction is assigned to the Customer Relations Department. Next, the board level controls the number of employees, in relation to efficiency, whereas a strategic department determines the amount of work to be done, in relation to many values, among which are safety and reliability. Thus, workload and work capacity are decoupled into separate departments with separate interests. This makes balancing and steering difficult. One regional manager noted that when an operational department satisfied the required number of worked hours, as the director required, the operational department felt less obliged to finish the actual workload, required by a strategic department.

Next, ENEXIS established a new central department to order maintenance equipment and the materials that mechanics use. This department centralized the storage of spare parts to improve efficiency, but the effects proved otherwise or contestable at least. Mechanics were now required to order

the parts they needed in advance. But, in practice, mechanics frequently required spare parts they had not foreseen. Not only did they lose time ordering equipment, waiting times for ordered parts even ran up to eight or ten weeks. Some mechanics started driving back and forth to central storage, halfway across the country, in the hope of locating spare parts that were out of stock. Mechanics felt impeded in planning their maintenance activities, having to break off activities, rescheduling and ordering simple spare parts by expensive express delivery. In response, a group of mechanics rebuilt their own local warehouses. So, at cross-purposes, local department invested again to reverse losses which the central department had perceived to be an efficiency gain.

A problem occurs when institutional decoupling disconnects the one coping with a conflict from the conflict's negative consequences. For example, construction work frequently deals with trade-offs between deadline, quality and efficiency. But maintenance crews, unconnected to the construction work, are the ones who deal with disturbances and their disruptive effect on their work, months or years later.

At NS, major responsibilities for the core operational process driving trains have been clearly divided between a specifying and an operational department. The Commercial Department specifies rules and instructions from a customer's perspective, focusing on maximizing revenues. The Passengers Department operates the trains, focusing on minimizing costs. The Commercial Department is held responsible for customers' appreciation of the products, whereas the Passengers Department is accountable for the physical output in terms of measured punctuality.

This division of responsibilities may lead to a counterproductive tug-of-war. In one example, the Passengers Department discovered that it was convenient to plan trains that needed to drop off and pick up transfers at a busy station far apart. Thus, a train at platform 2 waited for passengers arriving at platform 14. From the customer's perspective, the Commercial Department favored a more direct transfer, for example, from platform 2 to platform 3, particularly for those passengers with reduced mobility. So, when the Commercial Department got wind of this new planning rule to enlarge the distance passengers would have to travel to make the transfer, they urged the Passengers Department to re-plan the trains. But from an operational perspective the more distant platforms, though less convenient for transfers, proved optimal for punctuality. In practice, train staff turned out to be less tempted to accept a delay and wait for all the transfer passengers to board,

because the two trains were far apart. During the negotiations on the scheduling, an alternative solution was found to compensate for the longer walk between platforms with an extra minute in a different place in the timetable, incrementally shifting the bottleneck elsewhere. The point of decoupling is that these multiple adjustments for different values do not converge in one integral overview, but remain compartmentalized and succeed each other in different rounds over time. This is termed ‘cycling’ in the coping literature (Ch. 2).

In the same organizational context, dedicated managers at the NS Commerce Department are specialized to serve stakeholders in their desires to adjust the timetable. Consequently, problems such as overcrowded trains are solved by lengthening trains, instead of reconsidering the timetable. Incrementally, many opportunities are seized to gain an extra traffic slot, extra stops and extra trains. After years of small adjustments, the timetable loses its robustness and resilience, affecting reliability performance and even safety, as more disturbances spread over the increasingly unpredictable network. Therefore, planners at the NS Passengers Department occasionally design a completely new timetable to restore robustness from their perspective (Ch. 5). In this process, though, the trade-offs between expanding train services and the worsening robustness of the system are not directly managed, but cycle over time. In the worst case, these many decoupled interventions reinforce themselves endlessly as managers keep pushing specific values through. The result may be mindless cycles of promoting A over B followed by promoting B over A, draining resources and carrying coals to Newcastle.

Yet another decoupling example at ProRail is that the agreements with the Ministry of Transport and the train operating companies follow separate routes in the organization. The processes and deadlines for both items do not run synchronously. As a result, it becomes hard to match the requested means, as negotiated on with the ministry, with the requirements of the train operating companies and to take the efficient use of means into account during the planning process.

Next, Infra Management, the department responsible for infrastructure maintenance at ProRail, has a target to reduce the number of disturbances. Accordingly, they plan to reduce the number of switches, because these assets are rather vulnerable. Note however that switches, though hardly used, may still have a function for system resilience in case of disturbances. This is well understood in the traffic control process, but this experience is institutionally

decoupled from the incentive to reduce the number of disturbances caused by infrastructure failure.

Even after decoupling, there may still be an informal ‘warm’ interface between separate institutions. Traffic Control, for example, takes over Capacity Management’s job to deal with requests from train operating companies from one-and-a-half days beforehand up to real time. So, many requests that the Capacity Management Department would reject can still be approved by Traffic Control. Because of its position close to operations, the Traffic Control Department encounters a constant stream of disturbed circumstances. This enables it to grant many late requests. The consequences are spread over the system and can be dealt with directly and in sync with actual circumstances. Train operating companies, however, have increasingly discovered that they can avoid the formal procedures of the Capacity Management Department and even increase their chances of success by postponing their request to enter ProRail via the back door of Traffic Control. The requests of the train operating companies are met, but at the expense of values that face the consequences of a more densely used and less predictable network. So, the institutional decoupling enables many ad hoc requests increasing work pressure for traffic controllers and triggering many new conflicts.

Organization versus organization

Unbundling, liberalization and outsourcing all lead to decouple multiple values over multiple organizations. The unbundling of the rail industry has split many value conflicts and reduced attention for inter-organizational trade-offs and system optimization. For example, infrastructure manager ProRail optimizes rail traffic flows, NS optimizes the efficiency of its personnel planning. Both suboptimize overall performance.

When multiple train operating companies claim the same resource, there is a clear strategic incentive to harden that claim, at least to make the claim as hard as possible and preferably harder than those of other organizations. This is the case when companies submit their capacity demands. Recently multiple train operating companies requested the full capacity of major shunting yards for the whole year. This can be explained as follows: When train operating companies underestimate the capacity they need, or when they try to build in extra flexibility by leaving capacity open, they burn their own fingers because other train operating companies claim the capacity instead. These are incentives

for companies to overestimate their needed capacity at the cost of many other values, such as efficiency, the robustness of the timetable and, possibly, safety.

In a similar way, outsourcing activities to private contractors introduced new 'firewalls,' as they are called in the coping literature (Ch. 2). As a result of outsourcing, the planning departments were placed further away from the detailed negotiations about operational trade-offs. The Capacity Management Department at ProRail, for example, does not directly negotiate with the contractors about possible margins for extra efficiency, speed gains and the possibilities for process innovations in doing the maintenance work. This institutional separation prevents Capacity Management from overseeing the trade-offs between the interests of maintenance activities and those of train operating companies.

In sum, this institutional decoupling strategy seems Janus-faced. It creates tasks that are less complex and less prone to conflict, but the drawback is that unexpected trade-offs require extra coordination efforts which tend to remain unrecognized. Although institutional decoupling seems to clarify who does what, the responsibility for optimizing trade-offs after the planning phase shifts to a collective level. This collective level provokes coping behavior from a mono-value perspective that sets out to harden interests separately, but, in effect may only make conflicts more unruly.

HARDENING VALUES: "SAFETY IS FIXED IN PROCEDURES"

Another f decoupling strategy in the planning phase is to fix values in norms and instructions. In other words, values are 'hardened' against conflicts. Values become static requirements that can be met in isolation of other requirements. For example, ENEXIS specifies quality and safety levels in elaborate technical specifications and working procedures. "Safety is fixed in procedures," ENEXIS staff say. ProRail similarly hardens non-discriminatory treatment of train operating companies into working procedures for planners and controllers. The advantage is that hardening protects values against conflicts, even the unknown. Simultaneously, however, norms provoke conflicts without addressing them and while obstructing opportunities to mitigate trade-offs.

We discuss two kinds of tensions. Values that are easily hardened are apt to marginalize a value that is more difficult to harden. Next, values that are not easily hardened get compromised when extensive efforts are made to harden them.

Hard versus soft values

Not all values are suitable to be operationalized and secured against conflicts. That is to say, not all values can be similarly hardened. Some values are thoroughly hardened, such as the cleanliness of trains. Contractors receive exact specifications on how often to wipe a chair with a prescribed towel. In general, the hygiene of trains is well served by these norms without causing much trouble to other values.

Some inherently 'soft' values resist being hardened, though (cf. Steenhuisen, Dicke and De Bruijn 2009). For example, accessibility for train passengers with reduced mobility is difficult to specify in norms, since there is an enormous multitude of different handicaps and combination of handicaps, each with their particular needs. Managers at NS responsible for accessibility actually prefer a low degree of specification. They explained, that "concrete standards would only discourage the necessary discussion about this value." Consequently, accessibility often conflicts with other values described by much clearer norms.

Next, the non-discriminatory access to rail infrastructure is hardened in such a way that train operating companies are granted the inalienable right to use their scheduled rail tracks after the planning process. This right prohibits ProRail from modifying plans, though many reasons might present themselves for doing such, as disturbances or unexpected deterioration of a segment of track. This 'right' prescribes that a chock-full but delayed fast train must be delayed further when it conflicts with an empty but punctual local train. This latter train has the right of way. The procedure is that ProRail may propose an alternative plan, but train operating companies are not obliged to give up their assigned track. Particularly the new companies operating local trains tend to claim their right of way, decoupling their own interests from optimizing the situation for the larger number of passengers from a system perspective. Reasonable arguments on the numbers of passengers affected by the trade-off at the system level do not always incite the small train operating companies to cooperate.

What is striking is that ***reliability*** proves particularly difficult to 'harden' in the complex operations of ProRail and NS. Reliability appears to be a soft value. We elaborate two examples, first related to the continuity of traffic flow in the operations of ProRail and then related punctuality within NS.

> *"Reliability is different. The disturbances and the unplanned nature only appear after we distribute the capacity. So we do not pin that down in requirements for the timetable."*
> ProRail planner

Compared to other values, continuity of rail traffic flow, in a general sense, is hard to plan for. Consequently, in real-time operations, reliable performance tends to get attention ***after*** many other values have already overconstrained the available resources.

The impact on reliability of disturbances, such as delayed trains and blocked rail tracks, seems strongly dependent on the resilience of the timetable, of the rail system as well as of the planning of personnel and rolling stock. This resilience is partly planned. But in truth it appears infinitely complex to coordinate multiple logistic flows simultaneously (rail paths, locomotives, rolling stock, train staff, communication and travel information) in a network of organizations responsible for the dynamics of operations (Ch. 7). Whereas the Capacity Management Department frames its plan as 'conflict free,' Traffic Control perceives a structural lack of operational resilience to cope with disturbances. The problem is that no one can really quantify or articulate the need for resilience, and how it increases or decreases and with what effect.

There are indicative planning norms for resilience. There are conditional planning norms that specify what is called 'technical feasibility.' These norms, drawn up decades ago, are dated, inaccurate and generally contested. In the meanwhile, Capacity Management accounts for exceeding these indicative norms by referring to train operating companies' current ability to achieve high punctuality performance, cited as above 85%. Their prudent conclusion is that operational resilience seems little compromised. Apparently, these planners presume that the effects of limited resilience would show up in the punctuality figure and, unlike the formal performance standards, they consider 85% to be satisfactory. Another indication of sufficient resilience for the Capacity Management Department is the fact that Traffic Control regularly adds more trains to the planning than the norms consider appropriate or possible.

Employees at Traffic Control, however, generally express that the timetable is "only formally feasible." In the meanwhile, they encounter a structural loss of operational resilience. "There is more capacity distributed than there is to give," said a line manager in the Traffic Control Department. Simultaneously, however, employees at Traffic Control say they cannot

articulate how resilience should be planned for, either in the timetable or in the planning of new infrastructure.

> *"Operational resilience just tags along. You only find out what to do in case of disturbances when scenarios are already drawn up. For particular bottlenecks, then, there is no other solution than to cancel trains. Some scenarios are made two weeks before the new timetable is put into effect."*
> ProRail line manager

> *"We never have been able to specify and judge new infrastructure extensions on their capacity to manage disturbances. That capacity only becomes clear when the infrastructure is already there… Concrete and iron is easier to talk about. When billions are invested, redundancy for coping with last minute orders is not in the people's mindset."*
> ProRail employee

Thus, many claims are more easily hardened than operational resilience. Neither are the values achieved by means of operational resilience captured in norms. It thus remains unnoticeable in the planning phase when the continuity of traffic flows is jeopardized.

The arrival punctuality of trains, the main reliability indicator for NS, represents a rather soft value as well. In the franchise agreement between NS and the Ministry of Transport, punctuality is operationalized in a prominent 'SMART'[i] indicator of three minutes. Trains that arrive before '2 minutes and 59 seconds' after the planned arrival time count as 'on time.' After that, trains are 100% delayed. In operations, however, the value underlying this punctuality performance appears soft and enormously more substantial than that single, binary accountability indicator.

In practice, the three-minute limit to define a delay is arbitrary. The impact of this delay length highly depends on the situation. In one situation, such a delay may create a disturbance that spreads as oil-slick throughout the network. In another situation, the same delay may enable extra passengers to board and other trains to pass more smoothly. Train staff and controllers notice no severe consequences when they exceed the three-minute norm, if they notice it at all. The traffic controller could possibly make some arrangements (though, note this person works for ProRail, which is not accountable for punctuality

performance). Or the train driver might be able to make up the lost time in the kilometers ahead without doing any harm.

While train staff decide on the exact moment of departure, NS as an organization is accountable for the arrival times of trains. Yet no one can decide to arrive on time without making many guesses about what is coming up. Departing on time mostly has a positive influence on arrival times, but the actual correlation is contingent. So, counter-intuitively, the SMART punctuality indicator based on a norm of three minutes does not actually harden into any concrete task for any decision maker within NS.

Norms versus their target values

Hardening values in norms does not remove the fact that the actual value remains soft. For example, the punctuality norm often conflicts with the underlying value that it tries to serve. Consumer interests essentially underlie the train punctuality norm. These interests however, can be easily overlooked when maximizing punctuality. More punctual arrivals do not guarantee that passengers reach their final destination more swiftly and to their satisfaction. During disturbances, improvising new trains or continuing much delayed trains often offer a welcome solution for many passengers. From a punctuality perspective, however, the best solution often is to reboot the system and cancel some trains for a while. This enables controllers to start with a punctual network again. Improvised trains may impede this recovery. The system-wide trade-offs made during disturbances are quite complex. Schedules for rolling stock, locomotives and train staff can be severely disrupted. The synchronous logistical flows are much too complex to plan from single perspectives according to hardened decision rules.

Hardening *safety* appears similarly problematic. The pressure is most high to safeguard safety in norms and procedures. But again, specifying responsibilities forms no guarantee of realizing the underlying goal. Conductors are instructed not to depart with an overcrowded train for safety reasons. In practice, however, a crowd shifts to the platforms, grows bigger and tries to take the next train. This possibly only increases safety risks.

A safety measure is usually designed for a single risk and often fails to anticipate other safety risks. Face screens to protect mechanics from sparks may steam up obstructing their view while performing a risky job, thereby, causing even greater risks. Next, for safety reasons, the emergency brake in old trains cannot be disengaged by a train driver. But what if a passenger uses the

emergency brake to stop a train on fire in a tunnel or on a bridge. This is what happened near Zwolle in 2006. A train burned out on a bridge over the IJssel. The softness of the value safety lies in its situation dependence.

There are also numerous examples of tensions between norms and values besides safety and reliability. In the past, all thinkable dimensions of train seats were specified to an accuracy of half a centimeter in order to ensure passenger comfort, as agreed in the yearly performance contract with the Ministry of Transport. After learning that these detailed norms had become more influential than the test of comfort by sitting in the seat, NS abandoned this means of specification. As a final example, a lesson for NS was not to focus on providing information in Braille as a norm for serving visually impaired passengers. Many of these passengers, it turned out, were unable to read Braille.

6.3 CONCLUSION

Despite the integral set-up of central planning systems, planning processes at the network-based organizations implicitly push many conflicts into the sphere of operations, because many planning practices are prominently oriented towards the separate realization of public values. Central planning systems set out to cope with competing values in a coupled way but this pretension meets some inevitable limitations. Many ‘decoupled’ mechanisms simultaneously underlie the operationalization of multiple values producing clear responsibilities and dedicated tasks aiming for conflict-free plans. A side effect, however, is that the complicating operational context of multiple values remains structurally overlooked. It is not yet clear what trade-offs emerge from this decoupled planning process. Warm interfaces between planners, staff and managers seem crucial to be sensitive to these trade-offs, but these interfaces in practice generally appear not that intense. In this way, many conflicts are implicitly organized out of the planning processes. Consequently, many optimization problems, as well as their opportunities, remain unaddressed until conflicts materialize in real-time. Chapter 7 further describes how value conflicts re-emerge and trigger unplanned trade-offs in the operational processes.

NOTE ON CHAPTER 6

[i] SMART is a commonly used acronym in project management literature claiming that a ‘smart’ formulation of goals is ‘specific’, ‘measurable’, ‘attainable or acceptable’, ‘realistic’ and ‘timely’.

Chapter 7 Coping in the operational process

The previous chapter showed that the planning phase implicitly procrastinates many value conflicts to a later phase. Even when processes run according to plan, many unplanned trade-offs emerge in the course of operations.

To discern trade-offs in operations, we observed and interviewed seven groups of workers: train conductors, train drivers, transport controllers, regional and local traffic controllers, mechanics and their chiefs in the field. They work in the core operational processes of their respective organizations. They are the eyes and hands of their organization. What they do or fail to do, in control rooms, on the train and in the field, determines service delivery and the realization of multiple public values. We empirically encountered a large variety of coping strategies among these workers.

The first section of this chapter shows the 'instruction cocktails' and potential conflicts faced by operational workers. Second, we apply our coping framework, from Chapter 2. The 'coupling-decoupling' dimension reveals systematic difficulties in responding to conflicts in a coupled way. Then, we elaborate on the 'deliberate-emergent' dimension of coping strategies, revealing significant undeliberate value disposal. In a following discussion section, we address the aggregate effect of these operational last minute trade-offs. A pattern emerges. As cross-pressures arise, more decoupled and emergent strategies render critical public values, such as safety and reliability, extra vulnerable.

7.1 INSTRUCTION COCKTAILS

Operational workers function in the midst of many 'mono-value' plans, rules and instructions as well as conflicts among them. These workers strikingly face far more cross-pressures than other employees, planners and managers. Previously decoupled value conflicts then reappear and new necessities and opportunities to trade off present themselves. In response to emerging conflicts, operational workers tend to fall back on their own skills and strategies. Their responses are generally undocumented. Operations-level responses are often so ambiguous that even the workers themselves have difficulty describing them

and their results. We now sketch here the ‘instruction cocktails’ served to three groups of operational workers, with many public interests mixed in.

TRAIN STAFF AT NS

NS train staff face many strict procedures. Signals tell train drivers when to accelerate or brake. Signals tell conductors when to commence departure procedures. Handbooks instruct staff how to depart, how to dress, how to keep passengers informed, how to treat customers and many other aspects of service. Train departure entails relatively high risks. Therefore, this procedure is fully described in casuistic detail for specific train lengths, types of stations and weather conditions.

Over time, new instructions are added. Since an incident in 1991 when a conductor was murdered, the personal security of staff and passengers in trains and at stations has been a topic of keen government interest. In 2005, the Ministry of Transport and NS agreed on progressive annual standards for this aspect of performance. This agreement on personal security led to targeted instructions in the handbook for conductors. Conductors are now instructed to walk through the train at least once every half hour.

Like a street-level bureaucrat (Lipsky 1980), conductors face incentives from various sources. To use personal security as an example, various more or less formal instructions on the personal security of NS train staff stem from *many* sources, among which the police, middle managers and coaches, colleagues, specialized security personnel, past training programs, a special staff group assigned to personal security issues and customers. Last but not least, a staff member’s personal security is preeminently a personal matter. Conductors appeal to their own personal experiences and preferences in addition to the other instructions. Together all these instructions produce an enormous cloud of incentives for just one public value (Figure 7.1).

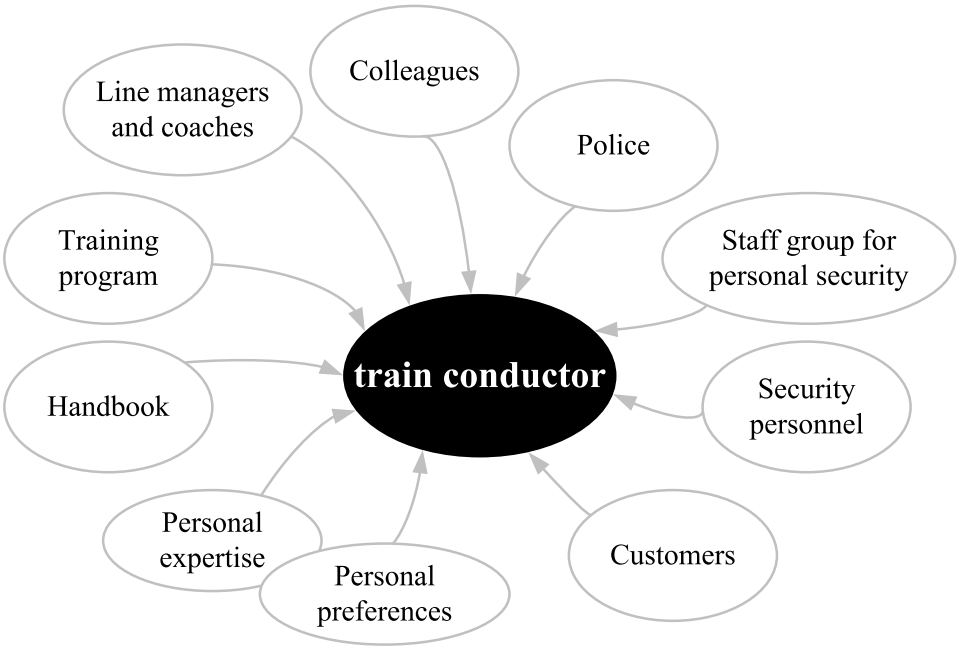

Figure 7.1: Multiple sources of incentives for personal security

Among these many incentives, formal work instructions may conflict with the conductor's own risk perception. Some conductors occasionally prefer departing with one door open so they can see what is happening on the platform and intervene if necessary. A drunken passenger on the platform might wave goodbye leaning on the train, hanging on a window, tripping and falling between the platform and train. Yet the standardized safety procedures prohibit the conductor from leaving the door open and thus keeping an eye on these risks.

In another example, when trains are under way, the Dutch Safety Board has argued that drivers should be restricted in their communications, because distraction might lead them to overlook signals. Yet communication may also serve to enhance safety and the smoother flow of trains. Traffic controllers need to be able to inform drivers of deviant signals ahead and drivers may need to inform traffic controllers about a situation they face. So rules and routines geared towards safety and security may compromise other interests.

TRAFFIC AND TRANSPORT CONTROLLERS AT PRORAIL AND NS

Three main controllers guide trains through the rail network. They are the local and regional traffic controllers at ProRail and the (regional) transport controllers at NS (Ch. 4). Each controller has a handbook with detailed rules on its role within the allocation process of rail tracks. As a staff member of the ProRail Traffic Control Department explained, the trade-offs involved are complex involving "safety, non-discriminatory treatment, an optimal flow of trains, compliance with the plan, transparency of the trade-off, predictability and maximum utilization of capacity." All of these values constantly interact in a myriad of minor decisions controllers make or fail to make.

Besides their handbooks, many more or less formal trade-off situations have become routine over the years based on the experiences of controllers at ProRail and the train operating companies. Most have been formalized in scenarios that address standard situations in which a particular train has a certain delay. However, many disturbances have no standard scenario, because they usually involve multiple trains in unique, complex conflicts with many more relevant circumstances than one delay. Then, a standard rule is 'serve the delayed train last,' but other informal rules are routine as well, such as 'first come first serve' and 'serve the train that causes the most harm.' Each of these rules mostly prescribes completely different responses, but still they are used constantly and in parallel by many controllers.

To bring the large scope of interests together, controllers communicate in real time with other controllers and with operational workers. If the situation requires and allows it, regional transport controllers at NS, for example, communicate with several local NS junction control centers, train staff, the NS's three other transport control centers, a national control center for rolling stock and all four ProRail regional control centers. Each of these communication lines can be used to discuss the effects of decisions, but ech controller has only one telephone.

Subsequently, ProRail regional traffic controllers communicate with one another, with NS regional control centers, and with 30 other train operating companies in the Netherlands and abroad, and a group of local traffic control centers.

Local traffic controllers have by far the most communication lines to maintain (Figure 7.2). These communication lines interlock the interests and information of multiple operational workers in real time for a small part of the rail network.

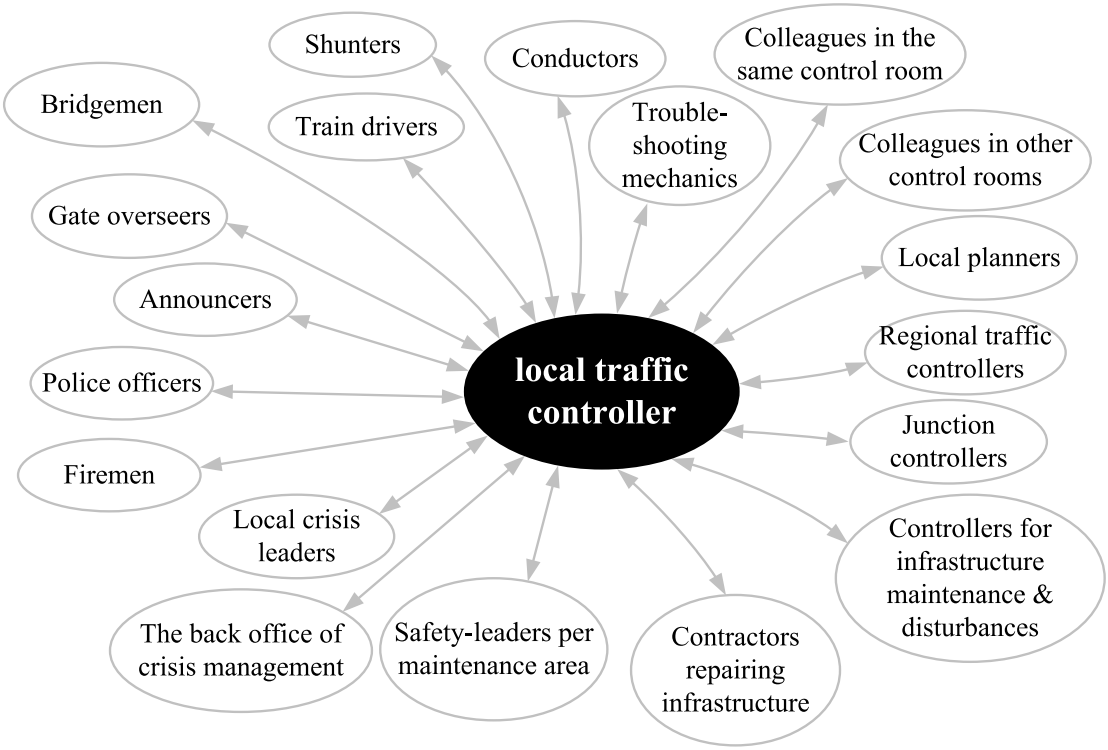

Figure 7.2: Multiple real-time communication lines between the local traffic controller and other operational workers

Thus, really complex value conflicts are dispersed over many operational workers in the traffic control process. For example, a contractor may need to repair infrastructure at a station. The contract workers communicate their needs to a local traffic controller, who may require the same rail segment to manage the daily flow of traffic in as undisturbed a manner as possible. There are many degrees of freedom to optimize the solution to this conflict, but all depend on many unknowns. How much track does the controller need to manage traffic flow? What do controllers at the train operating companies require? How much rail needs to be closed off for the contractors to work safely and efficiently? What level of safety and efficiency is sufficient, and who says so? When will the repairs be finished? What are the uncertainties? When does the traffic peak start and end? How urgent is the repair and for whom? How much money is involved? Whose money? Complexities like these in value conflicts bob up as multiple operational workers find one another via the task at hand.

MAINTENANCE AND DISTURBANCE MECHANICS AT ENEXIS

Mechanics at ENEXIS at the Maintenance and Disturbances Unit must simultaneously fulfill a long list of norms, procedures, instructions and other demands (Figure 7.3). The yearly work package instructs them to do maintenance, replacements, construction and reconstruction, to connect customers and, besides, to complete training programs and carry out other special projects. Underlying these planned activities are many precise instructions on safety and labor conditions, because working with electricity is dangerous. As such, safe distances to be maintained during specific operations are prescribed as an elaborate sum of multiple factors, plus uncertainty and ergonomic margins. Quality requires precise specification as well. After an installation or repair, components in an electricity substation should last for years, preferably with no inspection or maintenance required. For safety and quality, EU rules complement national and organizational rules. Mechanics too have professional norms and personal tricks they apply to achieve these values. Next, there are service norms for how to treat customers and norms on finishing activities in good time.

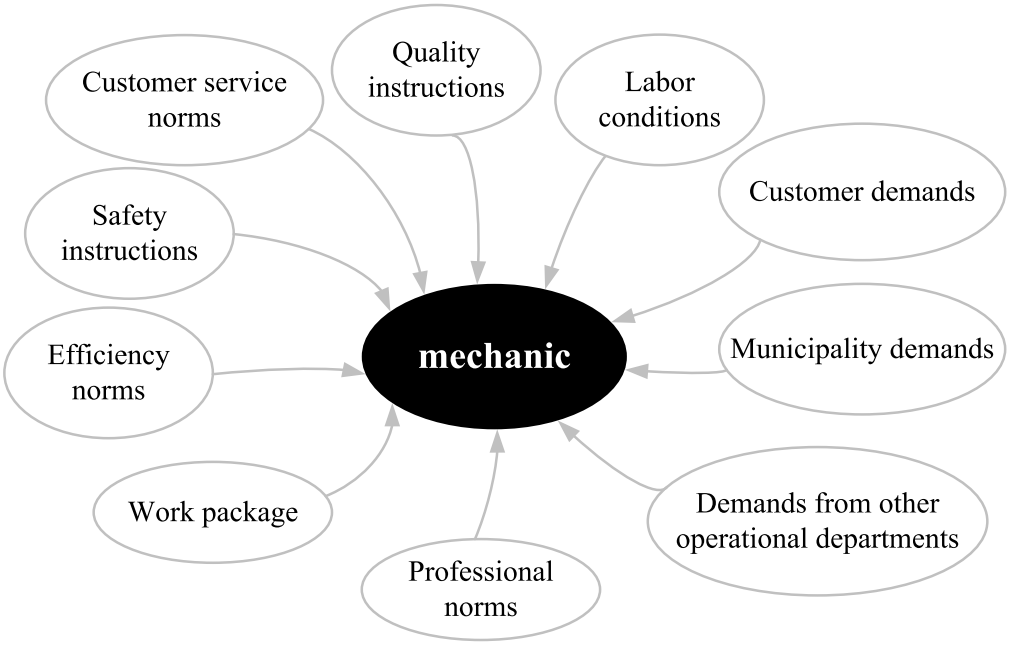

Figure 7.3: Instructions and demands towards multiple values for a mechanic to achieve

Like street-level bureaucrats again, mechanics face dynamic interests in the many relationships they, and their chiefs, may maintain. They constantly attune their work to the needs of municipalities, contractors, individual customers, private companies, colleagues in other ENEXIS departments and third parties involved in building and maintaining houses and infrastructure. New demands emerge and become more precise along the way during frequent contacts.

All of these incentives compete for mechanics' scarce time and attention. Whether and how many requirements converge is dependent on the specific situation and time. The emergence of incompatible claims is therefore quite unpredictable. Days full of slack alternate with weeks of a constant time crunch. Acute time pressure compels mechanics to reconsider the absolute need and exact value of particular instructions. Time pressure is heightened by financial claims or managerial pressures. Pressure also runs high when mechanics work in trenches in the midst of cities with a distinct time slot for electricity cables to be installed, repaired or replaced. These time slots are agreed in advance with municipalities and many other parties and possibly shared with up to seven other network-based organizations working in the same trench by turns. A chief explains his daily reality as follows.

> *"You need to be finished before they come to asphalt the street."*
> ENEXIS chief in the field

Mechanics perceive their workload as quite unpredictable. One chief estimates that 60% to 70% of all the work planned must be rescheduled. They are regularly called off a job to repair more and less acute disturbances. Value conflicts particularly emerge during disturbances. Though mechanics have a professional norm not to quit before the disturbance is repaired, this sometimes conflicts with the formal norm not to work more than 60 hours a week, for health and safety reasons.

Furthermore, the number of rules increases over time, as new materials require new standards, adding to the enormous variation of which the old power network is already made. Externally driven safety concerns lead to new rules, for example, on protective clothing and tool testing, and to new procedures for connections, grounding and permissions. In parallel, some old, time-saving routines have been prohibited and replaced with safer protocols. Wider consequences, however, of the new rules and protocols often remain

unanticipated. Safety requirements may induce trade-offs related to deadlines, efficiency norms and administrative tasks or even interrupt daily work.

INTERIM CONCLUSION

Thus, all these operational workers deal with a great many instructions and many other incentives simultaneously. In that respect, operations seem to run remarkably smooth given the many necessities to cope when all these incentives converge. Instructions may be mutually exclusive, and inconsistencies may require unplanned trade-offs. Some instructions directly undermine other values, or even compromise its own underlying target value. The upcoming two sections describe these coping responses in operational processes. First, we discuss the 'coupling-decoupling' dichotomy and afterwards the 'deliberate-emergent' perspective.

7.2 COUPLING VERSUS DECOUPLING

Decoupling and coupling are opposite responses to value conflicts (Ch. 2). Applying this analytical dichotomy reveals an underlying pattern in how operational workers respond to the conflicts they face. They appear to have structural difficulties with coping in a coupled way.

Coupled coping, to recall the concept, means to deal with values in relation to one another. So, coupling always manages multiple values in the same conflict. Multiple values might be 'hybridized' into one task. An example is the NS 'service & security' personnel who patrol train stations. The establishment of this group recognizes the added value of coupling both customer service and security values into one job. 'Casuistry' is another type of coupled coping. Casuistry means to routinely assess on a case-by-case basis trade-offs on competing values. The aim of coupling is to safeguard multiple values within a conflict.

Decoupled coping is to address values separately, as if escaping from the conflict. So decoupling is a mono-value response to conflicts. A typical example of decoupling is allocating responsibilities for different values to separate departments or individuals. One job might serve Value A while another takes care of Value B. The major goal of decoupling is to 'harden' values against conflicts, even unanticipated ones.

DECOUPLED COPING

Decoupling often offers a convenient and defensible way ahead for operational workers facing conflicts in their daily work. A decoupled response may directly mitigate an acute dilemma, reducing the risk that needs to be taken consciously. As in the planning phase, decoupled coping responses are rather common in operations. We illustrate the underlying logic of decoupled coping through examples that we observed.

"If no solution is available, the delay is unavoidable"

For many operational workers, one value towers above their list of priorities. One conductor said that personal security was the major value to pursue. Some conductors, particularly those from the older generation, are inclined to equate their task to that of a law-enforcement official: "I am a conductor, that is to say, a law-enforcement official in the first place." This priority is understandable since it is the conductor who deals with aggressive fare dodgers on a daily basis. However, the preeminence given to one aspect of the job may result in decoupled responses when personal security conflicts with other values, such as punctuality or service.

Conflicts between personal security and punctuality are not always apparent to conductors. When some conductors encounter fare dodgers, they deal with them first, even if it causes a delay. Nevertheless, one of these conductors says that punctuality is never a problem, since it is always possible to depart 'on time.' In practice, however, we observed the same conductor fining a fare dodger while accepting a two-minute delay at a major station during rush hour. In the meantime, the train driver rang twice to urge the conductor to prepare for departure.

In this particular understanding of the conductor, his or her task is hardened to any conflict with punctuality. The conductor's definition of 'on time,' in this case, may be when all the necessary tasks are completed. As long as conductors do not shirk duties for private reasons, such as delaying a train to order coffee or coming in late at the start of a shift, some consider themselves to be automatically making the correct decision when delaying a train. That is the convenience of decoupling.

Delaying is never a standard response but a way out when punctuality conflicts with other tasks. A conductor explained, "Of course, you look for other solutions, but if no other solution is available, the delay is unavoidable."

Strikingly, on reflection conductors explain this decoupled response as if they were coupling. Their reasoning runs as follows: Not fining a fare dodger would increase the number of fare dodgers, which would increase conflicts with punctuality in the future. Security conflicts would also be increased if they dealt inconsistently with fare dodgers, which would fuel stress and irritation among the conductors who must call them to account. Thus, always fining fare dodgers, as a decoupled response regardless of the situation, automatically results in the correct trade-off, in this conductor's view.

"We optimize price"

In the electricity distribution company, many of the operational processes in which mechanics are involved are outsourced to contractors. Strategic departments portray outsourcing as a value-neutral way of optimizing the work flow, to gain time and personnel capacity. The responsibility for outsourcing is assigned to the operational department Infra Services. There are strict selection and quality criteria for contractors to be eligible for this work. Once these criteria have been fulfilled, Infra Services may focus on optimizing price.

Outsourcing is a decoupled approach to value conflicts in operations. Quality and safety are safeguarded through the vast number of work instructions and protocols, overseen by operational chiefs. These instructions are, for reasons of principle, detached from value-conflict situations. Simultaneously, efficiency is supposedly safeguarded through the market mechanism of outsourcing.

According to chiefs in the field, however, outsourcing work to contractors leaves much to be desired. Chiefs particularly struggle with contractors' minimalist and formalized attitudes towards quality and safety. After a contractor has complied with the selection criteria and attained the necessary quality certificates, "they are eager to seize every occasion that saves time," according to some chiefs and middle managers.

Chiefs, thus, encounter many trade-offs in which contractors favor time and efficiency over quality and safety. Yet, such trade-offs are not necessarily undesirable. Perhaps the realized level of quality and safety is good enough, and the professional norms of the chiefs in fact exceed the standards of their organization and regulator.

Certifications for delivering safe and quality work, being an on-paper reality, do have their weaknesses. Contracted mechanics do make trade-offs between time, quality and safety when chiefs are absent. Even when they are

present, one chief commented, “Explaining quality in concrete terms is not always as easy as one would think.” The operationalization of safety in this context in fact appears subjective and dynamic (Ch. 5).

Furthermore, the ***consequences*** of decisions made by contracted mechanics are neither immediately visible to the chiefs at ENEXIS. A new or repaired cable may be buried before a chief can check it. Trade-offs made during the work are likely to remain invisible for months or years. When they do eventually emerge, the chiefs who oversaw the contractors are unlikely to be directly confronted with the consequences. A different unit within Infra Services deals with disturbances. So the consequences of any trade-offs made by mechanics are easily postponed and pushed out of view.

The logic of outsourcing emphasizes a decoupled approach to conflicts between efficiency, quality and safety in operations. From a strategic point of view, it enables ENEXIS to ‘optimize price.’ Yet, in operations, conflicts between time efficiency, quality and safety cannot be managed in this strict sense. They appear and reappear in whatever task is at hand, to be confronted by operational workers with their various value orientations in considerable discretion.

“Everybody has their own responsibilities”

The logic underlying decoupling is often to protect values against conflict. This good intention can work perversely, however, particularly when safety is at stake.

The risks involved in trade-offs between capacity and safety in the rail industry have given rise to vigorous debate among safety staff, engineers, politicians and safety inspectors. One way to gain capacity would be for ProRail to split rail paths into shorter lengths around stations. This technical measure would considerably reduce the time trains must wait for one another at stations to depart or arrive. Without the shortened paths, more capacity is occupied for longer periods.

Simultaneously, however, shortening rail paths creates safety risks, despite all precautions. When train drivers receive a green departure signal for a shorter track, they might not expect the track to be occupied just a few hundred meters outside of the station. Consequently, this technical measure is said to increase the number of red signal passages and thus safety risks (Ch. 5).

The trade-off between where and how to split rail paths is made in the design phase of the signaling system. The dominant safety philosophy here is

that operational workers should not be put in a position in which safety competes directly with punctuality. Local traffic controllers underline this decoupled approach to safety. However, some also admit that they see no safety risk in shorter rail paths. Their reasoning is that one rail path can be no less safe than another, “because a red signal is a red signal.” Safety, as far as these controllers are concerned, is an inexorable fact following from the automated signal system. The controllers seem to operate with the notion that everything they do should be safe by definition. Accordingly, local controllers simply rule out the possibility of value conflicts with safety in their daily work. The perverse effect is that they become less perceptive to value conflicts concerning safety. For example, they typically regard the risk of train drivers accidentally passing a red signal as beyond their sphere of influence, though many controllers have the competence and tools to mitigate these risks when interacting with train drivers. Accordingly, many other controllers do try to minimize these risks but without the conceptual possibility to consider it their responsibility.

The decoupled response seems to assure that value conflicts do not affect safety. In fact, controllers unjustifiably assume that safety is fully taken care of.

“Stick to the plan”

Controllers generally prefer simple decision rules, such as ‘stick to the plan’ or ‘late is too late.’ These spare them communication efforts and the accompanying uncertainties. Moreover, their responses become predictable to other controllers. A coupled casuistic response, in contrast, would bring ambiguity to what is right or wrong and would require much more information and communication among controllers and train staff.

Rules grant controllers a value-neutral position, in their own view. Simultaneously, however, they detach controllers from the value conflicts they are in. Regional traffic controllers, for example, describe themselves as ‘planners.’ Some go as far as to deny that there are conflicts in their daily work. “We do not face difficult decisions,” they say, “There are standard procedures.” Indeed, there are many pre-arranged trade-offs, though they are hardly ever 100% appropriate in the actual circumstances. For example, a delayed or cancelled extra train might create new opportunities that make it unnecessary to apply the harsh standard rule of canceling a train in order to restore system punctuality. These standard responses, addressing conflicts in system design,

detach controllers from conflicts in operations. Standard procedures also discourage controllers from asking about the consequences of their decisions for passengers. By the way, this is not to deny the functionality of these procedures.

Since the timetable is constantly adapted to serve more passengers, operators face a diminishing system resilience to recover from a disturbance within the given timetable. Consequently, they increasingly fall back to 'rebooting' as a standard procedure. In practice, rebooting means canceling delayed trains, especially slow trains, for a period of time. This enables staff to recommence service according to the timetable thereafter. Although small stations may be packed with stranded passengers after a large disturbance, controllers prefer starting with intercity trains in all directions, often passing by the overcrowded stations.

A more common measure is to cancel the last two stations of a delayed train in order to 'restore service to the timetable.' Then, the train turns around at its end station and starts the return trip punctually. The interests of the passengers who had planned to embark or disembark at the two cancelled stations are sacrificed, but controllers see the punctuality scores rise and the number of conflicting trains fall, together with diminishing work pressure. Controllers focus on train punctuality for practical reasons. Moreover, it is the most eye-catching quality indicator to NS's environment, at least it still was in our research period. Accordingly, punctuality figures are the main information NS controllers see on their screens.

In the meanwhile, many other trade-offs occur from a passenger's perspective. These are invisible to controllers, because they have neither contact with the customers nor do they possess detailed real-time information on passenger interests. Relevant information concerns, for example, the actual numbers and types of passengers, the traveling plans of passengers, a part of the train may be closed, a few doors may be out of order, the situation in the train, availability of alternative transport, the situation at the station where passengers are put off, whether passenger information is available, whether facilities are present and open, local weather conditions and possibilities to find shelter if necessary, etcetera. These circumstances, mostly well-known to train staff and relevant when serving passengers, remain unknown to controllers.

But regional traffic controllers portray their work as single-issue with uncontested rules and without possible compatibility problems: "All we do is isolate delayed trains." In fact, the controllers deal with many critical trade-offs

between multiple delayed trains, apparently without recognizing the contested valuations. Their main assumption that each train has equal rights induces a simplification with regard to its interests. First, competing trains do not have equal interests in terms of speed and punctuality. Compare a full train with an empty one, or an international train with a local one. Passengers generally appreciate trains to be punctual. Freight trains prefer quick departure after completing a shipment. The interests are much more detailed than just 'on time.' Neither is it fair to say that trains have equal chance of being delayed. International trains at the end of a long journey are much more likely to be delayed than trains just starting their route. Instead of addressing the many unique circumstances, controllers tend to think in accountable but overly simple terms of 'stick to the plan' and 'late is too late.'

'Coupled' consideration of multiple interests often underlies these simple routine decision rules, though. For example, the major decision rule for regional traffic controllers is that 'delayed trains should not delay other trains.' This rule deals with the punctuality of many individual trains and targets for enhanced resilience at a system level. Simultaneously, the rule aims to maximize the use of capacity, as well as to treat the different train operating companies in a non-discriminatory way.

Thus, the use of standard decision rules, though often intended as a coupled response, slackens attention to the need to couple. In practice, it discharges controllers from the task of gathering information on up-to-the-minute circumstances. It relieves them of working pressures and communication burdens. By applying a seemingly 'trade-off-proof' rule, controllers are freed from inquiring into the actual trade-offs taking place.

COUPLED COPING

Unlike decoupling, coupled responses to value conflicts are more challenging to operational workers. Coupled coping tends to be less systematic and lacks uniform decision rules. Again, we illustrate the underlying logic of coupled coping through numerous examples.

"Sometimes there is just no way out"

We spent a morning with an ENEXIS technician while he dealt with a disturbance in a star-shaped network of low voltage cables to newly built houses. He tried to figure out what had caused the disturbance, but felt highly constrained by the many values, norms and conditions at hand. What follows is

his coupled response, as he weighed different values but without finding a satisfactory solution. In the meanwhile, the disturbance could not just be left unaddressed.

The technician considered two methods. One required cutting off, possibly more than once, the neighborhood's electricity supply, in this case affecting some 50 houses. Regulation, however, required households receive an announcement of any planned outage a number of days in advance. The burden of this regulation has increased due to the recent preference of building star-shaped networks over mesh-shaped networks. Star-shaped networks offer greater efficiency in connecting new neighborhoods. A disadvantage of these networks, calculated in by the way, is that many more households are potentially affected when managing disturbances than with the old mesh-shaped networks. So, besides the nuisance of cutting the households' electricity supply, informing them beforehand is increasingly time consuming and labor intensive. Even then there is a chance that the cause of the disturbance might not be found.

An alternative method, less disruptive and less labor intensive, is to measure the electrical current over time, looking for an overload. But this method carries a higher risk of not finding the disturbance, while also draining the valuable time of the mechanic. In the meanwhile, until a decision was made, the disturbance would remain slumbering in the network.

There was a theoretical third option to cope with the disturbance by strengthening the fuse and waiting to see whether the disturbance reoccurred. The technician felt too uncertain in this case. The question was whether this measure would compromise the safety function of fuses, which are designed to blow in a short circuit.

From a strategic perspective, the increased difficulty in coping with disturbances in star-shaped networks is considered acceptable relative to the efficiency gains offered. From an operational perspective, the technician confronts disturbances without satisfactory methods for solving them. The technician is forced to either ignore a disturbance, in complete contrast to its professional ethos, or to do a great deal of work and to inconvenience the neighborhood without certainty of finding the disturbance or even knowing the chances of its resolution.

The mechanic perceives the time spent on this disturbance as highly inefficient in relation to other tasks. After assessing the few alternatives, the technician sighed and said, "Sometimes there is just no way out anymore."

Given the hectic circumstances, the technician chose the second method, measuring the current. The chance of resolving the disruption was smaller, but the method was the least time-intensive. The relief of work pressures in the present weighed up against the possibility of increased workload in the future.

This example shows how complex multiple conditions converge in practice and incrementally shrink the solution space. In this case, efficiency gains in the building phase, security of supply, safety rules and norms for how to treat customers converge in a concrete dilemma that rules out a satisfactory solution for the mechanic. Ultimately, the operational worker feels obliged to spend a disproportionate amount of time on the disturbance at the cost of other tasks. So, although the mechanic wants his response to be highly situation- and time-specific, without a transparent basis he lacks a systematic method to weigh the many values interlinked in the conflict.

“I’ll wait when I want”

In the rail industry, pre-set coupled responses are seldom available for operational dilemmas. Coupling responses often stand alone without the support of general procedures. Consequently, operational workers typically make their own decisions. They cope alone.

Conductors, for example, make many daily judgments on whether norms are worth spending their scarce time on in particular situations. In other words, in applying norms there is elasticity which conductors autonomously explore. They have their own ‘kingdom,’ conductors say. Determining the boundaries of this elasticity is regarded as a personal affair. For example, a conductor might decide multiple times each day whether a situation calls for a delay. Whereas the norm for train staff is ‘always depart on time,’ there are many reasons not to do so. One conductor was quite disciplined in departing on time and appreciated the strict and clear instructions. Others wait when they want. All respond differently, using personal heuristics to estimate the appropriate response per situation.

An enormous hotchpotch of values seems to underlie punctuality in the heuristics conductors. From a train-technical perspective, conductors make allowances for the station they are calling at, the particular train they are staffing, the amount of time physically needed for passengers to make a transfer, the routes trains will follow afterwards, the possibility of making up a delay, the nearness of the final destination, the presence and cruciality of future connections and the trustworthiness of all these estimations. Additional factors

from a passenger's perspective are the actual time needed to transfer, the number and type of passengers (students, families, commuters, elderly people, tourists, hooligans), the comfort of the station (temperature, wind and shelter, time of day, facilities) and personal security at the station. Relevant factors from a system perspective are the degree of disturbance in the network, disturbances that would be caused or, contrary, neutralized by a delay and the resilience of the system.

Among these many values, punctuality appears relatively 'soft.' Conductors may wait an extra minute for disabled passengers. They do this not only from a service perspective, but from a safety perspective as well. People may trip when suddenly hasted or startled by the departure signal and end up between the platform and the train, as a conductor explained to us. Next, conductors provide information to passengers, fine fare dodgers and, occasionally, wait for the police to pick up an offender. Most such claims pay directly into a concrete result, such as a safety risk tackled or a happy customer. The disadvantage of punctuality is that the mandate 'always depart on time' does not directly pay off in that way. Punctuality thus tends to worsen gradually without any directly visible consequences for the conductor facing a conflict. Strikingly, punctuality is always the last decision in a series when a conductor addresses a conflict upon a departure. Anything else that requires attention always comes first. All possible reasons to deviate from the planned departure add up, making punctuality soft in practice.

As illustrated, these frequent value conflicts in practice involve an enormous scope of situational factors and concern many different public values. There is no general way to describe how all these factors are recognized, selected and weighed, if at all. Really coupling all these factors in response to myriads of marginal conflicts among them would involve enormous effort to gather all the information. Conductors in fact have a rather incomplete and biased picture of their situation, as they generally respond with messy coupled strategies to these frequent conflict situations according to their personal 'pigeon holing' routine. In the meanwhile all these various routines together structurally disadvantage punctuality.

"We fly by the seat of our pants"

The need for an overview of the situation is particularly relevant for coupled responses to conflict situations in the traffic control process. The relevant information, however, is highly dispersed over many controllers, particularly

since the unbundling of the rail industry separated the control rooms of what is now called NS and ProRail. When conflicts emerge, various controllers potentially possess a part of the puzzle. Some face opportunities without direct sanctions, while others face only sanctions as fait accompli. Exchanging information between controllers, therefore, is critical. There is no central overview though. Understanding conflicts relies on the interaction between many controllers.

At the same time, communication is highly demanding and burdening. Therefore, controllers also need to find many shortcuts that reduce the need for communication, such as applying standard scenarios and sticking to the timetable. These are planned coupled responses.

An informal shortcut is for local traffic controllers to get involved in the tasks of other controllers. Local controllers are closest to operations and have the most complete local overview when dilemmas between trains occur. Since the new unbundled traffic control system came into use, some local controllers have incrementally come to perform more and more tasks that were formally assigned to other controllers who no longer have the best overview. For example, they inform train staff about the up-to-the-minute situation and schedule, they spend time puzzling to prevent delays and intervene when delaying a train for a few minutes could safeguard a transfer between trains, and they play a pivotal role in passing information from one controller to another. Though small the effort, doing these extra tasks on the fly seems vital for optimizing responses to trade-offs that arise in conflicts.

When the workload rises, however, local traffic controllers tend to revert to their formal task, restricting their focus to safety only. The ‘extra’ tasks are then disposed. Optimizing the traffic flow and communicating with other controllers becomes second priority. Particularly during crises, it is often sink or swim for local traffic controllers. “The first five minutes after an obstructed rail track, the local traffic controller is totally occupied and fixed on the screen,” a manager explains. At these moments, “we fly by the seat of our pants,” controllers say. Thus, local traffic controllers make use of various opportunities for coupled coping, but when workload peaks they may suddenly lose sight of conflicts and cease responding in a coupled way.

“We just use common sense”

Because many interactive responses among controllers are often informal, ambiguous (Roth, Multer and Raslear 2006) and even paradoxically structured

(Van den Top and Steenhuisen 2009), they frequently deviate from standard responses and formal procedures. Instead, controllers base their decisions for a great deal on common sense. They often speak of ‘common sense’ as “the core of our job.” This means they treat situations in a detailed, considerate manner when procedures appear unproductive or do not apply.

However, controllers use common sense without being able to define it in a precise way. “A key performance indicator is to be quick in programming rail tracks. We prefer doing it ***well*** instead of quickly,” a regional traffic controller said. “In practice, our work is not about minutes, but it is about moving those trains. Gut instinct.” It is difficult to derive from such explanations, and even after continued questioning, what controllers actually mean by ‘common sense’ in terms of realizing values. Some controllers jokingly say their aim is “to do what is best for ‘Netherlands, Inc.’” An NS transport controller said simply, “The right thing for us to do is to transport all passengers,” as if this provided a concrete action perspective and excluded possible conflicts within the task. At ProRail, traffic controllers frequently equate common sense with “allowing trains to run.” Most responses speak of “moving trains” or simply doing “the best” entailing multiple values but neutralizing conflicts beforehand.

Practical examples of the application of common sense, deviating from formal rules, are to put a fast train in front of a slower train when both vie for the same track. Sometimes controllers even deliberately cause a delay to “keep the flow of trains steady.” Some controllers discriminate between train operating companies, because “they know what to expect.” Particularly the smaller companies were said to be less organized and in need of extra assistance. Such a response couples punctuality, system resilience and the non-discriminatory treatment of train operating companies.

Another unwritten, common sense rule is that controllers recruit other controllers’ support. When dealing with a conflict, controllers may try to combine their own interests with the interests of other controllers. ‘If you help me with my train, I’ll help you with yours.’ In this cajoling, controllers routinely connect conflicting trains that have nothing to do with each other. ‘I got your train yesterday, now here is mine.’ Though unstructured and messy, this wheeling-and-dealing does enable controllers to mitigate bottlenecks by mindfully using each other’s flexibility.

Next, not all regional traffic controllers strictly use the three-minute norm to separate trains in the planning. Instead, controllers cited a common

sense rule, "If it *fits*, it is fine." This 'craftsmanship,' however, is not very explanatory. Some planners at ProRail unambiguously reject this behavior. Although their decisions may be based on experience and insight, the criterion of 'fitting' is, indeed, quite hollow and could mean nearly anything. Neither are these common sense rules officially prescribed or uniformly applied.

Though 'common sense' is upheld as a guiding principle, it is neither precise in recognizing value conflicts nor directive in indicating how to optimize. The cues to identify value conflicts remain implicit and the coupled responses are mostly unauthorized workarounds. Formally speaking, applying common sense often implies 'deviant behavior.' This might still be defensible though, as formal instructions may structurally leave certain values under-articulated that common sense may still address in a concrete dilemma situation.

INTERIM CONCLUSION

Both coupling and decoupling are richly present in operations. When comparing these types of responses, coupling appears tricky and burdensome and decoupling simple and straightforward (Table 7.1).

Coupling tends to disorganize. It reduces the solution space available to those who cope, as instructions geared towards multiple values overconstrain resources. Few prescribed responses to conflict are available. Therefore, coupling often requires messy, self-made strategies guided by professional discretion. The formal solution space regularly runs out, triggering coupling responses that violate formal instructions and conditions but still may eventually produce a win-win result.

Another constant is that coupling applies most strongly to unique situations and appeals to a rich interpretation process of the values at stake and the priorities required. Much more than decoupling, coupling requires what Schön (1983) described as 'reflection-in-action,' which means to "think about doing something while doing it," "learning by doing" or "thinking on your feet" (p. 54). Accordingly, coupling is highly demanding and potentially stressful, claiming much of the operational workers' time and attention.

Moreover, coupling often involves collective action, which requires high-quality information sharing between operational workers. This is highly time consuming, particularly because of the increasing specialization of operational workers. Time, however, is often severely lacking at the moments

conflicts materialize. As such, coupling seems to create conflicts instead of solving them.

The outcomes of coupling regularly tend to be unsatisfactory even to the coping operational workers. Nevertheless, coupling is in many cases the only way to address and optimize conflicts not foreseen in the planning phase.

Decoupling, in contrast, generally relies on formal instructions or clear rules of thumb. Therefore, it is less demanding in terms of employee competences. Decoupled responses provide predictable courses of action and simplify the way operational workers relate to one another. It enables operational workers to stick to the rules and to dedicate themselves to the most critical values as management desires.

Moreover, decoupling tends to act as a value-neutral intervention, concealing the indirect effects of coping and so shifting these effects to others unnoticed. Since decoupling is based on planned responses, it generally offers workers a legitimate way out of conflicts. It instantly creates solution space and saves workers time and stress. For many awkward situations, decoupling provides workers a reliable, if not the only, way out.

In short, the main difference between the two types of coping appears to be the way one bears the costs of what one does. Coupling internalizes the consequences of action, whereas decoupling externalizes some (negative) consequences while focusing on other (positive) consequences. A broader comparison of general features (Table 7.1) illuminates many disincentives for operational workers for coupled coping and the convenience of decoupling.

Table 7.1: Features of coupled and decoupled coping

Coupling	Decoupling
Unique, messy, deviant responses	Standard, formal, planned responses
Internalizing consequences	Externalizing consequences
Disorganizing; reducing solution space	Organizing; creating solution space
Optimizing local conflict situations	Maximum priority for a repressed value
High dependence on information	Low dependence on information
High dependence on others	Low dependence on others
Discretion necessary	No discretion necessary

Indeed, coupling in the traffic control process was frequently found so messy that controllers structurally stopped coupling, retreating to their own islands to 'cope alone' instead, though many trade-offs remained at the interfaces of the various controllers. Decoupled approaches in these cases led to behavior that was accountable, predictable and understandable to operational workers. Particularly as work pressures rose and instructions became stricter, operational workers preferred decoupling.

Our examples of coupled coping, however, also show that operational workers are currently still enticed to cope despite the dilemmas they call down on themselves (Table 7.1). This observation is in line with Nielsen (2006), who argues, in the realms of 'street-level bureaucrats,' that these workers do not only tend to be prisoners of rules and procedures in order to escape accountability dilemmas, as Crozier describes bureaucrats. Instead, many workers appear highly motivated to get themselves into trouble. In some domains of operations, we observed the ratio between the Nielsen-type and the Crozier-type of coping bureaucrats to be roughly fifty-fifty. Managers confirmed this estimation. This ambiguous group of coping practices in operations makes it hard to understand and predict the overall effect.

Chapter 8 will further describe this overall effect and how managers implicitly institutionalize both types of coping responses simultaneously. But first, we elaborate on the second coping dimension of our framework, that of deliberate and emergent responses.

7.3 EMERGENT COPING

The rational actor model would presume NS, ProRail and ENEXIS to strategically maximize their utility and guide the necessary trade-offs on the basis of their own preferences. Literature on coping, by contrast, suggests less explicit and less deliberate trade-off behavior as well. Our second dimension is that of deliberate and non-deliberate coping (Ch. 2, Figure 2.3) to describe responses to conflicts in operations.

Workers make many attempts to balance competing values, simultaneously maximizing multiple performance aspects, as described in the previous section. Emergent coping behavior is less understood, though it has its logic. We dedicate this section to illustrate this logic, again, by means of many examples.

EXAMPLES OF EMERGENT COPING

In each of the three cases we met various forms of emergent coping behavior.

"What did I actually do today?"

We could observe numerous examples of emergent coping in the busiest places in operations. As discussed above, local traffic controllers are frequently overloaded with work during a crisis.

> *"Local traffic controllers do their utter best, but they simply lose control. After eight hours of keeping their nose to the grindstone, they go home and ask themselves, 'What did I actually do today? What happened to me?' They don't have the confidence that they are in control of a logistic process. They do not see whether their decisions worked out positively or negatively. They do not know what is going on."*
> Traffic control manager

When a train collides with a cow, a car or a suicidal person, as happens, several rail tracks are obstructed for an indefinite period. Local traffic controllers are the ones to attempt a first logistic way out of the ravage. Many trains must be immediately rerouted. The local controller has to gain control over the situation. In practice, she or he starts turning trains around without regard for specific interests besides safety. Work pressures at these times often lead to blunt refusals of the requests of train operating companies. The lines to communicate with the local controllers are often blocked, because they need to parachute themselves out of this impending 'loss of control' by focusing on safety alone.

> *"As a local traffic controller you need to be thick-skinned to the people who call. During some peaks you play deaf to the phone that keeps ringing."*
> Local traffic controller

Consequently, there are many uncertainties for many different controllers in these disturbed situations. The actual conflict situation becomes even more complex when it is unclear *if* the rail paths are actually blocked. This occurs all too frequently, let alone that the controllers know how much of the rail path is blocked and how much of the other paths. A local controller might receive the message 'a cow is on the rails' from a worker in the field. The message may

neither indicate the specific location of the cow, nor whether the cow is passing or staying. Safety might be at risk, but taking measures as if (a number of) rails were blocked would severely interrupt traffic.

The local controller has two response options: slow and flexible or quick and rigid. First, the controller might ask the first train driver approaching the general area to provide information about the situation. The cow might have disappeared in the meanwhile, because a farmer intervened. But if the cow is still there the rail paths need to be cleared. Such a move would be quite disruptive to traffic flows. The number of trains that need to be rescheduled in such a case, alongside the time needed to do the rescheduling, has meanwhile increased in the time consumed by the inquiry of the train driver. It is also highly unpredictable whether the driver will be able to provide the needed information. Even if this course of action works out favorably, for example, because the cow has disappeared into thin air, the controller in fact has merely bluffed her or his way out of the conflict.

The second option is not to wait for more information but to start rescheduling trains. Then, the small disturbance is still relatively manageable compared to the mess that might arise if the response is five minutes later. This response is much more robust than the first, but it is blind to the actual situation. Local traffic controllers often receive rather ambiguous messages and sloppy alarms, for example, from police officers unfamiliar with train operations. Controllers say they increasingly respond directly to all of these alarms to maintain work pressure at a manageable level. The consequences of these robust coping responses for the traffic flow at a system level remain unclear.

The lack of time for communication is another cause of emergent coping during apparent obstructions. While local traffic controllers start to turn trains around, regional traffic controllers simultaneously make plans to reroute, turn and cancel trains. Usually, they can neither inform local traffic controllers nor consult them on the detailed repercussions of these plans. Moreover, to fully understand the messages from regional traffic controllers, local controllers often need additional information from NS junction controllers. However, there is no time for this communication. As a result, local controllers frequently expect trains to run when they have been canceled. Some trains wait needlessly or swerve to avoid a ghost-train that was cancelled. Train drivers too frequently find themselves directed to a wrong destination, sent from pillar to post.

Thus, information stays with a controller who is too busy or sees no need to pass it on. “It depends on if someone picks up the phone,” a controller said. Meanwhile, the police might be unable to reach the local traffic controller to report another obstacle, such as a suspicious person near a rail track. Accordingly, the controller would not be able to start the process of signaling train drivers. At the same time, if the local controller does start to turn trains, drivers begin calling local traffic controllers for information on their train’s destination and may be kept dangling. Controllers have no time to talk. They just turn trains. Though generally best informed of the situation, during these moments of crisis, local controllers are often the last to know the up-to-the-minute plans drawn up for the trains by regional controllers of ProRail and train operating companies who are negotiating and problem-solving on full speed as well. So, critical information often does not reach the right controller on time, provoking emergent coping in the process. In the meanwhile, trade-offs occur unchecked and may do so in unintended directions.

“Priorities emerge”

At ENEXIS, chiefs of mechanics have experienced increased tension between multiple public values and time or work pressures. There is a constant and growing stream of customer orders. Deadlines are often strict, with the risk of financial claims and negative publicity if they are missed. Moreover, the failure to provide timely electricity service to a new urban neighborhood is not regarded as an option. Many small and large deadlines like these converge with the yearly work package laid out in the weekly and daily plans of operational chiefs. Middle managers and chiefs of mechanics say they regularly have more work than they can possibly manage. Accordingly, attempts to finish the workload lead to unstructured practices.

In the midst of these pressures, chiefs experience difficulties in explaining how they actually deal with conflicts between time and the elaborate procedures for quality and safety. Some describe “a gray area” that arises when all the pressures converge. “Time and quality are in permanent tension,” workers say. Some chiefs were reluctant to make an issue of every imperfection, since margins in the planning did not enable them to address deficiencies. “The present contractor employs all the mechanics in the already overstretched market,” the chiefs explained. They therefore sometimes felt obliged to allow certain deviations from the formal plans and conditions. “We muddle on. There is no other solution.”

Some chiefs agree with most managers that time pressures do not conflict with safety (Ch. 5). Other chiefs said they lacked time to deal with all of the deviations in their unique, constantly changing situations in the detailed way prescribed by procedures. Therefore, chiefs said they sometimes passively tolerated mechanics 'cutting corners,' deviating slightly from formal procedures. For example, mechanics may use their car as a quick but illegal way to fence off a hole in the ground.

If safety precautions are not being sufficiently met, formal procedure mandates the responsible chief, after establishing this fact, to immediately call activities to a halt and start over. This is the only acceptable decision, but all the same it is a tough one to make. The decision to redo jobs is disruptive and creates planning difficulties for many other jobs, again raising work pressures and possibly jeopardizing other activities. Despite an abundance of precise norms, some chiefs are often uncertain as to where to draw a line as quality gradually diminishes. Calling activities to a halt is not always the obvious option. Eventually, time pressures might affect quality against their will, according to chiefs and their direct line managers. "Our lives are lived for us," they said in describing these tensions.

In other words, safety can be compromised, while the priority for safety remains undisputed. This emerging priority can, thus, be the result of an intransparent process of interactions with many situational and organizational variables gradually changing. The same result can follow from a concrete safety measure. When the added value of safety instructions is not understood, for example when face screens risk steaming up while mechanics are working, it is neither straightforward how to prioritize safety by all means.

Time pressure does appear to affect the way operational workers cope. It makes their coping behavior less deliberate. Formally, mechanics prioritize quality over a customer's desire to have a job finished on time. But under pressure, the customer orientation does push operational workers to compromise on quality. Time-consuming aspects of a procedure might be skipped. Less urgent activities might be postponed. Such strategies become more structural as time pressures persist. Some operational workers felt justified in structurally prioritizing customer requirements over, for example, doing maintenance geared towards long-term security of supply.

The result might be that time pressures push away quality requirements in practice. Workers do not approve of this, but "priorities emerge," a chief explained. So, although each operational decision can be deliberate in itself, the

actual outcome may still be a reverse prioritization supported by neither operational workers nor their organization.

"Otherwise you get to discuss the expertise of others"

The rising specialization of tasks in operations implies that operational workers tend to be focused on a single value or a small set of values. Consequently, the many plans and incentives for various aspects of performance are dispersed over a large group of professionals.

Some values seem amenable to being encapsulated within a single job. For example, the regional traffic controller is in charge of ensuring non-discriminatory access of train operating companies to the rail infrastructure. Some values, however, require concerted action among multiple operational workers. For example, punctuality requires cooperation, at least among train staff, platform managers, operational managers, mechanics, ProRail regional and local traffic controllers and NS transport and junction controllers.

Formally, responsibility for punctuality lies with NS controllers and train staff. By contrast, many operational workers at ProRail tend not to recognize value conflicts related to punctuality. Some ProRail controllers go as far as to assume that value conflicts with punctuality are absent in their daily work, because punctuality is not part of their job description. "Punctuality is the responsibility of NS," ProRail controllers said. Instead of the assumed absence of value conflicts, however, a great many cues signal punctuality-related conflicts in the work of local and regional traffic controllers. So, these controllers' decisions, and non-decisions, lead to many trade-offs without much consideration of the specific interests of train operating companies and their customers.

As a result of unbundling the rail industry, the 'commercial interests' of train operating companies are fenced off from the neutral role ProRail has in the traffic control process. This decoupling makes it difficult for ProRail controllers to see when passenger interests are served and when not. It is even considered undesirable at times to inform regional controllers at ProRail about these interests.

> *"If train operating companies try to explain to me the importance of their particular train, that information is overkill.… It does not give me any more space anyhow."*
>
> Regional traffic controller

Another regional traffic controller explained that his attention is triggered by trains with more than a ten or fifteen-minute delay, or when a question mark appears on the screen for certain trains. For NS, however, a three-minute delay is enough to command attention in terms of the organization's performance measurement system. From a logistic point of view, a one-minute delay may be enough to cause a conflict or to worsen another. Small delays may create new bottlenecks, disabling connections, messing up personnel planning and potentially triggering a chain reaction of many more delays and cancelled trains, resulting in larger disturbances spreading throughout the system.

For their part, NS transport controllers, too, hinder controllers at ProRail in their work without noticing. We observed an NS transport controller ask Train A to wait for a connection. A few minutes later, Train B called a local ProRail controller and asked why the delay to depart. It was only then that the local controller saw that Train A was blocking the departure of Train B and would soon block the arrivals of Train C and Train D. The local traffic controller called Train A and was not amused to hear that the NS transport controller had violated its mandate by ordering the train driver to wait a minute or two. In the meantime, the damage was done, and Train A left the station as the transport controller had arranged.

Transport controllers have no insight into the detailed interdependencies between trains at stations, whether or not a train will hinder other trains. They are familiar with the possibility, but, if acute need arises, instructing a train to wait sometimes seems worth it without considering the impact on other trains, which cannot be taken into account. NS transport controllers do not communicate with local traffic controllers in real time. No such communication line is provided. The unbundled philosophy is that a direct line would exert undesirable pressure on the safety function of local traffic controllers.

Formally, the traffic control process arranges for joint coupled responses. The transport controller in the previous example should have requested an adjusted departure time from the regional traffic controller at ProRail who, in turn, would first consult with the local traffic controller and then issue instructions. This formal procedure, however, might take twenty to thirty minutes. Formal communication takes time; phone lines might be occupied. "This is unworkable," said NS controllers. First, the need for such adjustment is not always known thirty minutes in advance. Second, the time spent consulting might itself disrupt the control process. "Sometimes you lose a

rail track for ten minutes, because of consultations," NS transport controllers said. Yet NS must respond to acute situations in a matter of minutes, otherwise they might as well keep drinking coffee.

Additionally, controllers experience major difficulties in communicating with other controllers on why certain decisions were made or should be made. This also undermines joint attempts to perceive value conflicts. Controllers are frequently asked to give up their interests in exchange for what other controllers cannot or will not explain. A regional transport controller at NS complained, "When I ask the regional traffic controllers why my plan is not feasible, they answer, 'Just because'." Likewise, local traffic controllers do not approve of many of the decisions they receive from the regional traffic controller, but they carry them out anyway. "The decisions other people make are not subject to discussion," controllers argued.

Thus, the reluctance to go to the trouble of communicating and discussing reinforces the obscurity of value conflicts and takes away opportunities to respond in a deliberate way. One controller argued, "If you give conductors more information, then they take our place. They might anticipate the next train's arrival and decide to let it pass. You don't want that. That's not their job."

In practice, operational workers constantly make decisions without a complete set of performance criteria and also without seeing the results of their actions. An appropriate coping response then seems to do one's best, given the visible circumstances. But some values are more visible than others. For example, helping passengers transfer to another train is a far more visible result to a conductor than a growing line of trains waiting outside the station and the disturbing effects of the pile-up at a system level. To delay means to welcome happy passengers. To depart means to receive complaints, yelling passengers or worse.

The widely supported axiom among workers in rail operations that 'everybody sticks to their own job' ought to enable controllers to work more individualistically. This robust coping response would considerably enhance the predictability of system behavior. Nevertheless, their actions usually affect a far more complex value conflict than they perceive. Value conflicts fail to surface when the many specialized perspectives of operational workers remain separated. Each operational worker sticks to its own blindness when conflicts materialize.

So, the emerging performance frequently surprises the controllers involved. As a final, unique illustration, some controllers actually made a movie about this as an instructive device for controllers and train staff involved. The movie was meant to show each other how their separate routines collectively had most undesirable results in a simple conflict situation. The scenario took a departing train with a small defect which could have been repaired within five minutes. Some slight misunderstandings and slow communication, however, caused a twenty minutes delay for that train, hindering many other trains while occupying a whole army of increasingly confused and frustrated controllers. One striking response to the movie was that it shocked operational workers for its realism, literately bringing some of them to tears.

"Safety is a gray area, even though it is black and white"

There were some inconsistencies between what operational workers say they do and what they actually do in response to value conflicts. Many workers said they were guided by protocols and instructions, but observing their daily work, these instructions did not seem as definitive as the workers claimed.

Though a local traffic controller said there were no conflicts with safety in the daily job, the worker's actions told a different story. During one of our observation shifts, a local traffic controller put together a plan to direct Train A, running between two stations, to the parallel track and back. This is a common operation to prevent rust formation on the intermediate switches on a two-lane track. In this case, there was a second train, Train B, on the parallel track traveling towards Train A. The traffic controller first expected Train B to pass before Train A started its maneuver. If Train B were late, the computer would automatically give way to Train A. Then, both trains would face each other nose to nose for a few moments, at speed, on the same track, with only a few kilometers between them. In theory, this is not a problematic situation, because computer-made decisions are always safe, according to the local controller. It looked like Train A would arrive first as Train B was late. In response, the controller switched off the computer and instructed Train A to stop. We asked why. The controller said that the trains might get in each other's way. This answer seems remarkable, because, in fact, the controller directly hindered Train A while both trains supposedly could have passed each other without hindrance.

This inconsistency between what controllers do and what they say might be to camouflage behavior that undermines the legitimacy of the way they normally deal with safety risks. Or their responses might hide certain aspects not deliberately but rather undeliberately. Other observations reinforced our conjecture that controllers do not fully understand why they make certain decisions. For example, operational workers frequently portrayed their coping response as coupling while, in fact, they were decoupling, as discussed earlier.

Another traffic controller generously tried to give a more nuanced description of the position of safety in his daily work. He articulated his personal experience of dealing with safety risks, but could give no clear description of his responses when safety was at stake.

> *"In our professionalism, safety is a gray area, even though it is black and white. The thing is to have the guts to make a decision, but guts is not the right word, because then you are taking risks. The thing is to keep a few barriers between safe and unsafe. The question is, 'How many barriers are enough for you?'"*
> Local traffic controller

One of its notions, this comment illustrates, is the taboo of portraying safety as 'a gray area,' or even thinking about safety risks at all. Accordingly, responses to value conflicts are not always well-considered and understandable to those who face them. The resulting trade-offs even remain implicit to those who cope.

INTERIM CONCLUSION

Trade-offs in operations appear structurally neither explicit nor goal-oriented. It is somewhat awkward to speak of trade-offs in this way, because 'trade-off' usually describes the outcome of an active process of balancing competing values (cf. Thacher and Rein 2004). Yet in our case-study organizations, trade-offs also occur without specific decisions or deliberate actions. These coping responses consequently remain unaccounted for.

At first, this non-deliberateness seems to be an alien element in these organizations, which are generally dominated by rules and planning systems. Yet several explanations can be conceived for the emergence of non-deliberate coping. The major explanation is that trade-offs remain unrecognized. Responsibility for Value A are allocated to one job, but many other workers

meet opportunities and threats related to Value A, often without recognizing them. Trade-offs are made without confronting the consequences.

Another cause of non-deliberateness is that operational workers encounter forced choices or impossibilities. They are put or put themselves into situations in which they run out of options and there is no way out, as in our examples above. But the forces compelling these workers may *also* be indistinct. Increasing pressures may gradually jeopardize the continuity of operations. Practices become more ambiguously structured. This might limit the overview of a situation, but operational workers still feel urged to act. Then, they say things like "doing something is better than doing nothing" and "not making a decision is always wrong." So, the causes of coping tend to be blind as well.

These forced choices, however, cannot be blithely attributed to the 'quality' of instructions. The 'quantity' of instructions frequently seems to instigate trade-offs just as easily. Accumulating pressures might cause trade-offs even without converging in specific value conflicts. Multiple strict instructions and increasing work pressures may climax in an undefined, personal limit. As instructions pile up and pressures rise, operational workers may lose control of a situation sooner. Similar to norm conflicts, these circumstances force them to compromise performance on some values when the overall continuity of their work is jeopardized. 'To keep things going' operational workers often see no alternative than to allow for such trade-offs. "We are at the end of the pipe," chiefs of mechanics explain this dilemma.

Emergent coping is not necessarily undesirable. While this type of coping may move away from explicitly preferred priorities, this may be a marginal side-effect when pushing operations to maximum performance. So, emergent coping may enable an organization to accommodate more value conflicts, stretching its potential performance. Undeliberate trade-offs may function as to let off steam when pressures rise too high. Emergent coping may serve as a last resort before the pressure actually disrupts operations.

7.4 DISCUSSION: VULNERABLE VALUES

A pattern emerges in the effects of operational coping on trade-offs. Certain public values appear particularly vulnerable to the many unplanned necessities of operational coping. Reliability and safety appear particularly difficult to protect against many unforeseen conflicts, despite elaborate efforts to do so

(see also Ch. 6). ‘Reliability’ relates to punctuality, security of supply and continuity of traffic flows. Other values, appear less vulnerable to the many trade-offs in operations, such as ‘tidiness of trains,’ ‘cost efficiency,’ ‘equal and transparent treatment of train operating companies’ and values with concrete norms and deadlines, such as the mechanical safety of rolling stock and customers ordering new electrical connections.

Strikingly these vulnerable values are critical public values. There is relatively high external pressure for the realization of these values to be visible in SMART targets, indicators and standards. The internal urgency for reliability and safety are similarly high, either because these make or break the business or because it is absolutely undesirable and irreversible when employees lose their good health or life.

What mainly explains these vulnerabilities is not low priority, or how ‘SMART’ performance indicators are, but how these values operationalize in instructions. Vulnerable values materialize in ***numerous to be safeguarded aspects*** dispersed over many operational workers. Still these instructions do not cover the many conflicts workers may face. Consequently, these elaborate operationalizations of reliability and safety may induce workers to overlook conflicts and underestimate their own contributions with respect to these values. To recognize their own role, they need to interconnect inconsistent instructions in real time and apply multiple perspectives to further optimize. Although this sounds highly challenging, many implicit interactive coping strategies currently deal with conflicts in this way. A problem, however, is that many workers do not survey the cause-effect chains they are in for these values.

Reliability essentially becomes visible at the system level, but it is achieved in the details of operations. Reliability results from a great many conditions and actions in planning and operations. The value of individual concrete contributions to reliability, in the form of, say, a time buffer, a redundant component or a local coping routine, tends to remain invisible and under-appreciated. Yet, while the responsibility for reliability belongs to everybody, nobody is really responsible for many concrete impacts on reliability.

Safety essentially becomes visible in hindsight, in analyses in response to accidents. Many precise instructions are given to prevent the recurrence of accidents, but, in the meanwhile, emphasizing these as safety safeguards tends to leave other risks concealed or under-attended.

This vulnerability is further explained by the idea that reliability and safety are both “negative goals” in the terms of Dörner (1996, p. 50). Realizing negative values means to prevent an undesirable state, such as an accident or service interruption. Such values are, therefore, fundamentally more ambiguous and difficult to define than positive ones. A limited set of instructions may secure positive values satisfactory. Negative values, in contrast, require definition of a seemingly endless myriad of aspects for innumerable contingencies, and each aspect might prove crucial at a given point in time. Negative values are not easily instructable, since they typically involve sensitive interdependencies between jobs and individual exploration beyond the beaten paths. These features make negative values extra vulnerable when coping pressures rise.

The dilemma is that the organizations as well as their operational workers face many incentives to decouple these vulnerable values. Simultaneously, these particular vulnerabilities manifest ***because*** workers consistently decouple the associated values in practice. Whereas vulnerable values meet a relatively large number of tensions between norms and their underlying value, other values can be decoupled in less complex ways. Consequently, when the number of conflicts increases and values are hardened against them, the vulnerable values may structurally come off worst. The efforts organizations put into further hardening vulnerable values against unplanned conflicts eventually undermines them. Not anticipating this vulnerability induces many obscure trade-off effects that incrementally add up and compel operational workers to emergently sacrifice their most precious values.

These values cannot be planned for comprehensively, since doing so would require countless aspects to be interpreted in particular situations. This presses the organizations to depend on their workers’ capacity to treat these trade-offs in a coupled way. The capacity to couple these vulnerable aspects, though, is highly dependent on the available information, time and solution space operational workers have when value conflicts materialize. As shown above, scarcities in time and solution space may arise suddenly and increasingly so as pressures grow. These vulnerabilities tend to increase with the introduction of new rules and workloads. As pressures rise, workers increasingly face scarcities in time and solution space in more volatile ways. Under pressure, operational workers might fall back on decoupled coping routines. This response enables workers to regain control over their job, but

simultaneously cuts them off from conflicts and makes coping less deliberate. This change of coping strategy, thus, tends to sacrifice the vulnerable values.

As we further argue in Chapter 9, the fragmented oversight environment has a significant effect on these vulnerabilities. When vulnerabilities express themselves, for example, in accidents, the operational organizations are immediately exposed to critical oversight and costly reputation damage. This generally fuels the need for stricter rules, transparency and more complete specifications. At the same time, an increasingly decoupled organization enables the industry to give oversight what they want. Moreover, many unwritten practices of coupled coping would surely have no beneficial effect on the reputation of the organizations or the mercy of oversight bodies after an incident. But, with regard to the vulnerabilities identified, professional ways of coupling are a crucial remedy, as argued above. The risk is that a growth of external interference turns the organizations inside out, encouraging them to systematically ignore these vulnerabilities.

7.5 CONCLUSION

Many of the intricate interdependencies between multiple public values become visible for the first time to the operational workers at the front lines of these organizations. Norm conflicts and other inconsistencies often require improvised coping responses, as they lack prescribed solutions. Operational workers also deal with a great *many* instructions and other incentives geared towards multiple values, from managers, from customers, from oversight bodies and from other third parties. The large amount of instructions itself may give rise to trade-offs as well. Compared to elsewhere in the organizations, a relatively large share of value conflicts ends up in operations. In response, a variety of coping strategies is found in operations.

We analyzed this variety by applying two dimensions of coping (Ch. 2). Coupled responses appeared to invoke many disincentives for operational workers. Decoupling value conflicts often proved more convenient. Drawbacks of a decoupled response are that it failed to identify incompatible planning and neglected many opportunities to optimize trade-offs locally. For many of the operational workers who cope with conflict, it is tempting to hold on to a decoupled response, displacing the unplanned sanctions. Consequently, operational workers recognize fewer conflicts in their own daily practice, but experience more stress from the catch-as-catch-can attitude of other controllers

and emerging trade-offs become increasingly undeliberate. So, although these organizations are dominated by planning and strictly prescribed operational tasks, many coping responses at the operational level are not oriented towards some optimum; they may even be without a clear goal-orientation.

Emerging trade-offs do not automatically signal unprofessional behavior. On the contrary, workers often cope undeliberately as a last resort to prevent the system from a larger failure. Coping also becomes less deliberate in everyday routines. In effect, however, some values appear structurally more vulnerable than others. Safety and reliability in particular tend to get the short end when coping pressures rise and unplanned conflict situations increasingly seize operations.

Presumably, these operational coping strategies give rise to suspicion among middle managers. Middle managers directly oversee operational processes and must deal with these messy and often rule-breaking practices. Chapter 8 discusses the role of middle managers in response to operational coping. Do managers encounter operational coping or its effects afterwards? If so, how do they respond? Can they facilitate professional coping?

Chapter 8 Coping in the management process

The previous two chapters described two appearances of coping within the network-based organizations. Systems of strategic planning cope with multiple values in advance, but structurally decouple value conflicts as well (Chapter 6). Many conflicts shift to the operational level where operational workers display a high variety of coping strategies in real time (Chapter 7).

These two successive coping practices seem loosely connected, if at all. Managers and planners generally prepare for conflict-free operations, but operational workers frequently find themselves forced into disorganized coping practices by emerging value conflicts.

This disconnection between planned and real-time coping is not unnoticed by middle managers daily monitoring the operational process. In fact, most managers constantly struggle to make sense of operational coping. In the end, however, these managers approach operational coping reluctantly, as they vie to counteract and support it at the same time.

This chapter elaborates on the daily managerial answer to unplanned trade-offs in operations. First, it describes how operational coping triggers middle managers' attention. Second, it examines the managerial response to emerging value conflicts. In line with the previous findings on coping, these managerial responses also seem to face structural difficulties in directly addressing value conflicts. The conclusion reflects the overall performance effects and the potential failures, but also the functionalities, of this ongoing avoidance of conflicts.

8.1 MANAGERS INDIRECTLY ENCOUNTER OPERATIONAL COPING

Managers oversee operational practices primarily in two ways. Managers receive aggregate performance information and face-to-face feedback from operational workers. As a third option, some managers at times receive specific feedback from customers, but this is either quite incidental or already integrated in the performance information and, therefore, left aside in our analysis. From these first two sources of feedback, deviant performance typically catches the manager's eye. In this disguise, operational coping

reaches managers via both channels, so mostly indirectly, as symptoms. We discuss both these sources of feedback and emphasize their fundamental shortcomings with respect to understand operational coping.

PERFORMANCE INFORMATION

Input, throughput and output of primary processes are constantly monitored. Performance measurement systems produce many figures. Many of them can be compared with agreed standards. Running through these numbers does not directly reveal trade-offs however. Even when one performance figure goes up and another goes down, possible underlying value conflicts remain masked. How then do managers make sense of operational coping based on these performance management systems?

Fluctuating performance figures

Managers have plenty of fluctuating performance figures at their disposal. Which figures are actually used depends on the managerial position and person, but generally, all managers have at their disposal similar performance reports, inside and outside their direct domain. They commonly peruse a dozen or dozens of items on performance sheets, in percentages, numbers and costs as well as some qualitative measures. These items are commonly categorized under ‘product,’ ‘customer,’ ‘personnel’ and ‘finance.’ Some managers daily track micro-changes in these figures on their computer screen. Others prefer more general or periodic overviews.

The question is how managers sense value conflicts in these items. The figures (8.1, 8.2 and 8.3) below show representative overviews of output figures, covering many oversight interests in relation to the operational processes of interest. These figures are generalized for the whole organization. They resemble the types of figures used by directors and regional production managers. The figures of NS and ENEXIS show yearly performance. The ProRail figures show quarterly performance. Sources of the figures are annual reports, internal documents and regulatory documents.

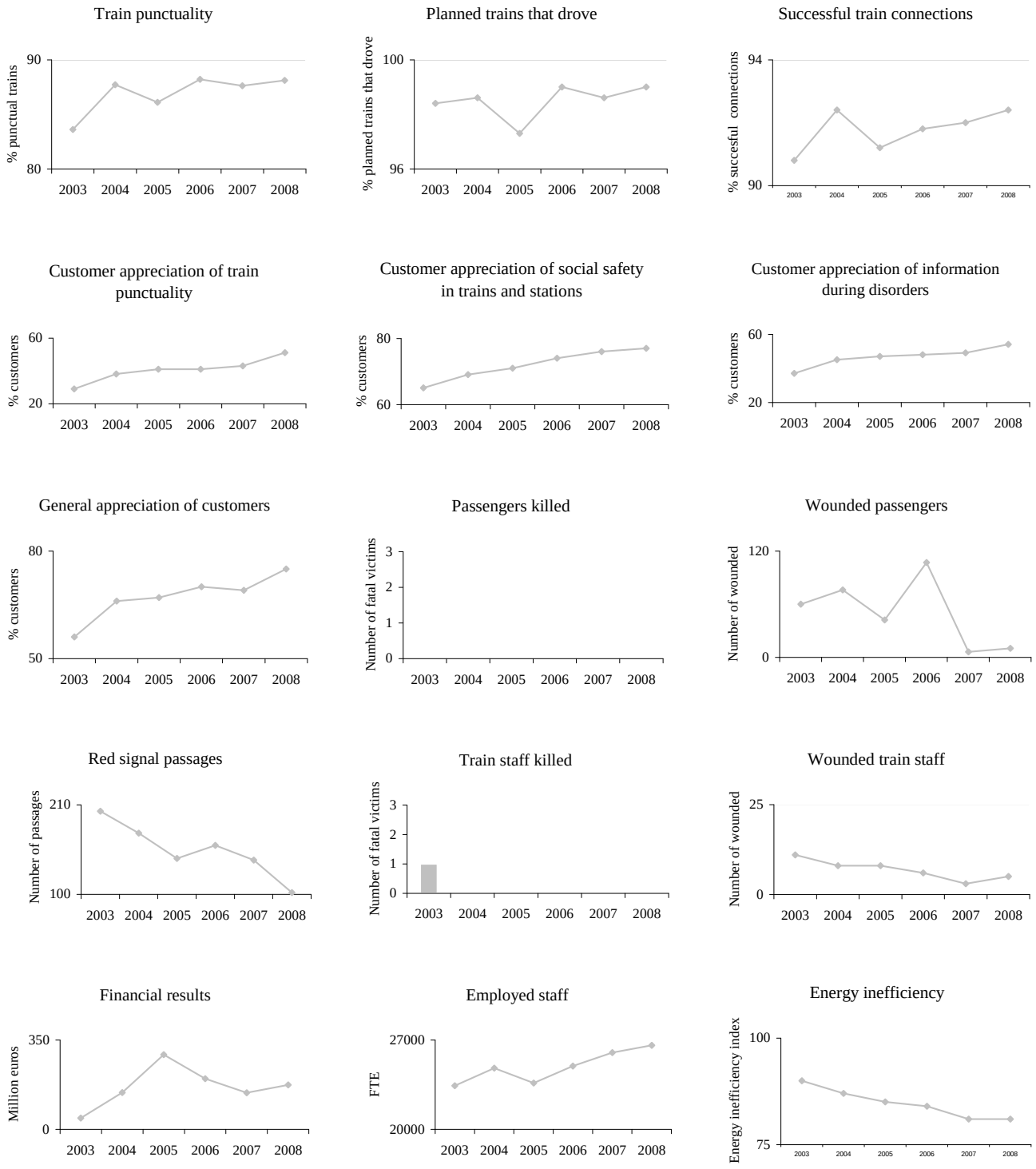

Figure 8.1: Recent yearly performance figures, NS[i]

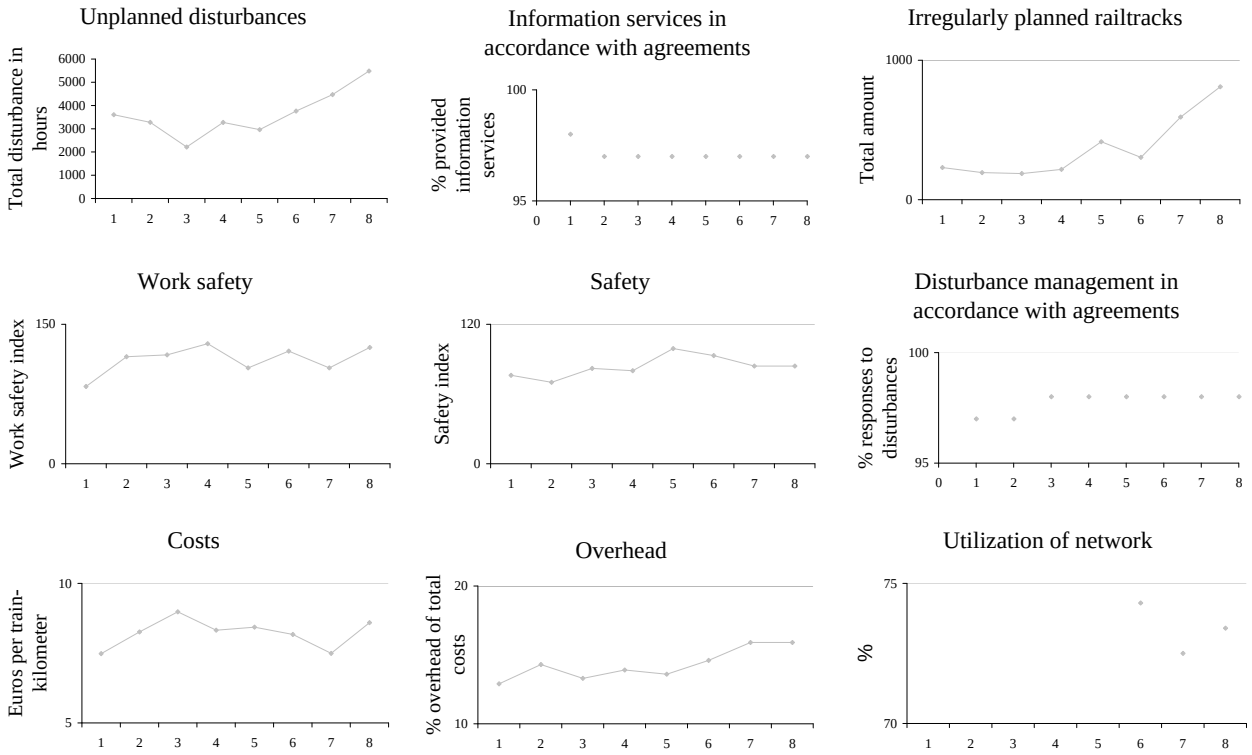

Figure 8.2: Recent quarterly performance figures, ProRail[ii]

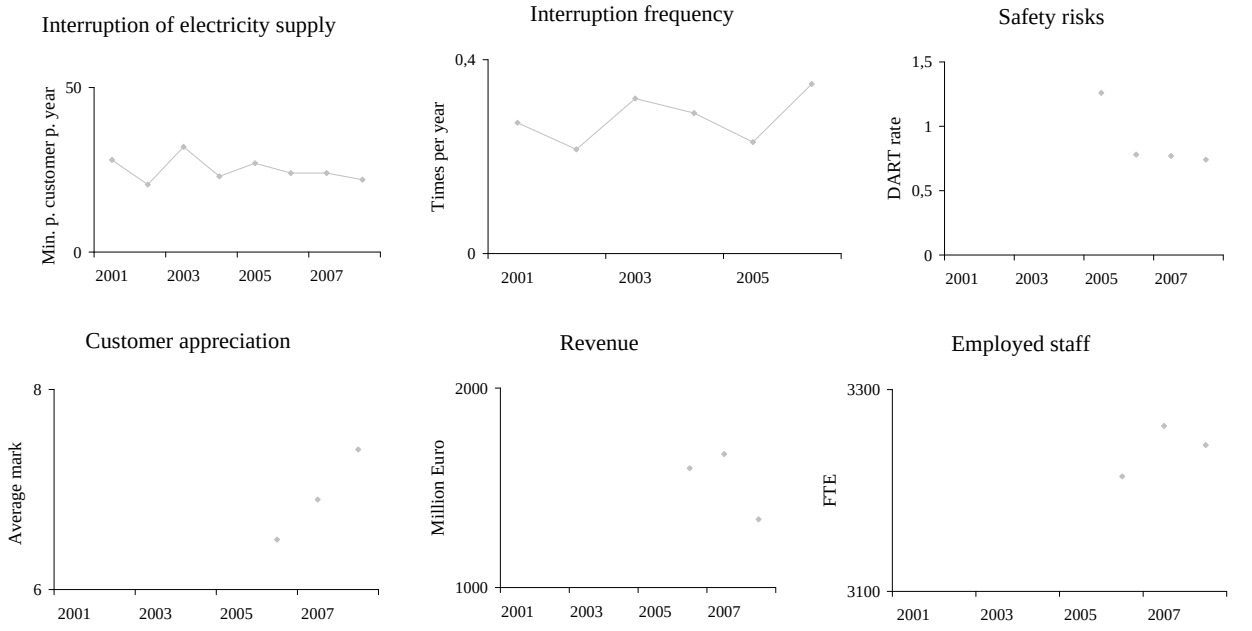

Figure 8.3: Recent yearly performance figures, ENEXIS[iii]

Strikingly, these performance figures do not seem cause for great concern. Most standards are currently being met or improving. Also, the organizations do well in relation to national and international benchmarks, as far as these are available (NS benchmark 2007, EZ 2008).

This is even more interesting when we consider that respondents across the organizational processes articulated their daily priorities in rather divergent ways. Some referred to formal agreements directly. Many had built their own detailed system of heuristics. Again others never really made their preferences explicit. Conspicuously so, these personal preferences frequently deviated from the 'key performance indicators.' Moreover, we found that much coping was emerging rather than managed (Ch. 7). Nevertheless, all daily trade-offs eventually seem to add up to a positive result for these indicators, as reported in the figures (8.1, 8.2 and 8.3) above.

It shows that multiple performance aspects, despite many value conflicts, do hardly seem to behave as communicating vessels. Yo-yo effects or other hiccups do hardly appear. Although as a manager said, "Attention can change from year to year from service to punctuality and back to service," this cycling does not show clearly in the performance figures. There are a few exceptions. In 2004, punctuality increased, but it was a relatively unsafe year. In 2005, safety performance improved again, but there was a clear dip in several NS reliability figures and prescribed norms were not achieved. Wider manifestations of competing public values, however, are remarkably absent.

Of course, not all effects on public values are visible in these figures, but, on the whole, the three organizations prove able to balance multiple competing values and to improve them, sometimes on all points simultaneously. While these improvements have been accompanied by a slight increase of financial means and personnel, they have not directly jeopardized the profits or the affordability of the public services. These are separately regulated.

Interpreting performance figures in relation to one another

Further striking is the major limitations in interpreting these figures. We studied whether these figures enabled managers to see the occurrence of trade-offs, for example, when punctuality is improved at the cost of safety.

Indeed, managers might see punctuality performance temporarily rise after intervening with a dedicated punctuality project. They usually back up this observation with figures on customer appreciation of train services. Indeed,

these figures too tend to improve in accordance with improved punctuality. At the same time, however, traffic controllers at ProRail may appear to need more time to restore smooth traffic flow after disturbances and the number of red-signal passages, indicating safety risks, may rise. On face value, these are just figures going up and down. After aggregating the effects of numerous decisions and actions, these figures show few causal relations between them.

Managers recognize value conflicts only when a plausible explanation is put forward saying why two figures behave as communicating vessels. Punctuality may improve at the expense of safety. Speeding, for example, allows restoring delays but concerns higher safety risks. Many similar explanations describe why punctuality rises and safety concurrently falls. Likewise, in the electricity industry, managers notice mechanics postponing the replacements assigned in the yearly work package. A common explanation is that a rise in customer orders and other jobs with short-term deadlines get priority over jobs with long-term deadlines.

Yet responding to conflicts by finding plausible explanations is sensitive to failure. Relating explanations to revealed performance effects does not exclude that opposite effects would have plausible explanations as well. For example, safety is also served by higher punctuality performance. Higher punctuality scores lead to much more predictable courses of action and, thereby, fewer surprises that catch train drivers in risky situations. But fluctuations in figures tend to confirm the fashionable explanations and discourage managers from finding alternate accounts. They also lead supervisors to expect new types of conflicts as a result of newly added instructions or changed circumstances. Most explanations managers use are general though and simplify the often ambiguous coping behavior described in Chapter 7.

Another difficulty in the interpretation process is that multiple figures may indicate fluctuations in opposite directions for the same oversight interest. For example, punctuality scores can be awful on a particular day, while customers indicate being rather satisfied. Such ambiguity should trigger managers to inquire into probable interdependencies between punctuality and, apparently, other passenger interests in operations. Likewise, mechanics have their personal sense of the state of the network based on their daily experiences. They may immediately notice when certain connections require replacement or when new materials deteriorate faster than they supposed to, whereas strategic managers establish the same fact after months or years of statistic analysis.

Closer analysis of the figures may reveal operational coping, but this takes time. Managers at NS, for example, found after detailed analysis that conductors are more inclined to tolerate an overly packed train when that train brings themselves home. Conductors appear more tolerant of the safety risks of overloaded trains at the end of their shift. Apparently, they cope with safety in conflict with more private interests.

A safety manager shows the difficulty to interpret value conflicts by describing that his unit constantly looks for hidden failures and conflicting rules, since performance figures may not reveal them. “If there are ten accidents, could it have been ten-thousand as well?” This manager concisely explained the main limitation of management information systems for finding value conflicts as follows:

> *“Conflicts reveal themselves in operations. When you measure the result, you do not find the cause.”*
> ProRail safety manager

Obscurity of performance

Another fundamental problem in recognizing value conflicts is that performance systems focus on norms instead of values. In the countable and aggregate output, critical parts of actual performance remain obscure to managers.

Particularly for critical values, performance standards are sometimes absent or implicit, as it is in the case of security of supply and various safety issues. Next, the core set of performance figures changes considerably over time, as well as the underlying data-gathering and calculation methods. Many figures, therefore, cannot be compared to past performance. Standards change over time, adapting expectations to the actual performance trends. For example, 92% was the punctuality standard for 2005 agreed by NS and the Ministry of Transport in 2001 (V&W and NS 2001). In 2004, these parties set the required performance to 86.5% for the coming year (NS 2004). Many standards to assess, whether public values are sufficiently safeguarded or not, appear quite relative over time.

In another example, operational workers may heroically deal with extreme numbers of value conflicts, while performance figures show no sign of irregularity. On Queen’s Day in 2006, a pool of train staff, in one region only, responded to 20 persons who pulled the emergency cord. Six fights broke out.

One train was demolished and many people were drunk and disorderly. Yet performance was not extremely bad in terms of performance. To the customers, everything seemed to run almost according to plan. The actual contributions made by operational coping that day remain truly invisible in performance information.

Managers generally complain that performance figures create too. A manager said, “Trouble addressing the things that local traffic controllers are good at.” At ProRail, a middle manager at a traffic control center explained that much of their output is not reflected in performance figures. He added, “Newspapers may pick up some non-measurable items,” but even then, “bad press does not rule out that we did a decent job.”

In the electricity case, most of mechanics’ daily work disappears for years under the ground or behind the closed doors of transformer houses. Performance figures do not show future quality. The quality of their work may only reveal itself in one, ten, thirty years or not at all.

With regard to safety, managers may see irregular or very low numbers of accidents. This information is backed by reports on near-accidents, but these figures do not directly reflect the degree of safety that has been realized in operations. Likewise, the main figures for security of supply do not directly reflect operational practices either. Other figures reflect operational reliability performance more, for instance, the number of disturbances in recently installed assets and the degree of completion of the yearly work package. These figures, however, typically fail to provide an indication of security of supply on a system level in turn.

This obscurity of performance is not necessarily due to bad monitoring. It is practically impossible to monitor all operational practices. Daily punctuality figures might be compromised by a myriad of (interacting) decisions at multiple control centers as well as trains from many different companies. This interplay of causes is difficult to disentangle, perhaps increasingly so. Next, trains and train staff travel through the whole country, whereas middle managers and control centers are bound to regions. While these managers have general performance figures, they estimate the effect of their own staff on performance in their own region at 30%. Furthermore, performance figures rarely go deeper than the performance of a group of staff. Management information on punctuality performance per staff member is not available. The same goes for security and service performance. In addition to

these practical complexities, union interests create extra barriers to gathering more specific performance information, in order to protect individual workers.

Another practical cause of obscurity is the high cost and difficulty of gathering performance information. There are so many and increasingly many performance aspects to monitor. In the meantime, even operational workers need to sacrifice time to produce performance information at the expense of spending it on their core job. Mechanics, for example, face the conflict of distributing their scarce time over doing more inspections and doing the jobs generated by previous inspections. Improving transparency of performance at the cost of improving performance itself is hard to justify. Still, operational workers frequently feel forced to compromise doing actual improvements. To limit the transaction costs of monitoring, the frequency or the obligation of measuring is often restricted, but that, in turn, compromises the validity of the information. In some case, managers were reported elementary performance figures varying so much that a score of 90% in one quarter changed to 5% in another quarter without an obvious explanation.

Thus, operational coping appears not easily traceable in the fluctuating performance figures. Discovering value conflicts in operations requires a rich and detailed interpretation process, but most assessments of operational performance remain obscure. Performance information mainly provides indirect signals of potential operational coping in falling statistics or rising departures from norms. In the meanwhile, the whole hierarchy of middle managers is deliberating on the same figures without much trace of the actual need or the concrete result of coping in them.

FACE-TO-FACE FEEDBACK FROM OPERATIONAL WORKERS

The low content of performance systems with respect to operational coping did not worry most managers. Many managers felt no obligation to account for their subordinates' performance in 'hard numbers.' They "know their people" instead, even the middle managers higher up said so. Managers often depict themselves, using a Dutch expression, as 'a farmer who knows the quality of his potatoes.' These managers see their primary task as to inquire into the way *how* performance comes about in operational practices. So, these managers are interested in the stories of their workers. Nonetheless, although face-to-face feedback offers huge potential to learn about operational coping, this potential appears difficult to utilize.

In various settings managers receive face-to-face feedback from operational workers. Most managers – line, staff and strategic – spend some time accompanying operational workers in their daily job. Additionally, managers occasionally receive feedback from operational workers when a value conflict escalates to draw in a managerial level in real time. For example, conflicting demands of various operational workers might deadlock a job. Some managers engage in regular or impromptu discussions about difficult decisions or situations that operational workers experience. The middle managers closest to operations naturally have the most regular interaction with operational workers.

The actual amount of feedback managers exploit to learn about operational coping, however, appears rather low. The stream of anecdotal feedback flowing 'upwards,' from the operational level to management, has a strong tendency to either dry up or transform. Managers tend to emphasize different informative value of the personal stories they hear. Traffic controllers at ProRail, for example, said they give right-of-way to certain trains, compromising formal rules but safeguarding 'the overall continuity' of train traffic. Though this seems a reasonable response in a particular conflict situation in operations, such rules of thumb usually do not offer a lead for managers to contribute.

In fact, anecdotes on coping often seem uninformative to managers. For example, time pressures jeopardize operational workers' doing their job right, but details tend to be highly individual. It often appears difficult to explain when and why conflicts occurred. Operational workers often report, "It was complicated," "we could not do it" or "it got increasingly disorganized," justifying trade-offs without invoking concrete value conflicts.

Managers tend to disregard feedback on inconsistent planning as to them it often seems rather unfounded. Operational workers might express doubt or disproval of a plan, and demonstrate their view with a practical example illustration why it would not work. The wider impact of such statements of these workers, however, proves hard to address, and regularly contradicts with smoothly rising performance figures. Operational workers appear generally not in a position to present their managers full, generic trade-offs on the basis of their experiences.

For example, ProRail's Capacity Management Department tries to facilitate feedback on the operational feasibility of the timetable under construction. A planner at Capacity Management described that Traffic Control

now and then sounds the alarm about ‘impossible’ parts of the plan. Capacity Management wants to exploit and understand this feedback more, but in practice, the feedback often remains sparse and unexplained. Adjustments to the scheduling are generally made in an iterative process until Traffic Control eventually gives its consent on face value without a solid reasoning. The actual operational coping practices remain unarticulated. Furthermore, planners have much more difficulty understanding these feasibility alarms from Traffic Control when the timetable is already being implemented and, moreover, when Traffic Control seems itself able to plan extra trains on top of the technically full timetable.

Next, operational workers frequently cloak their experiences in harsh emotion-laden criticism towards their managers. Some managers interpreted the feedback they receive as “unfair,” “full of reproach,” “coming from notorious troublemakers” or indirectly described it as ‘sabotage.’ Some strategic managers had anecdotes about representatives of the operational department coming to their office to complain about the current situation but slinking off again with their “tail between their legs.” Often, managers frame their feedback conversations as a way to teach or unmask the operational worker, as he is presumed to be uninformed and either incompliant or trying to be ‘more Catholic than the Pope.’ The fact that operational workers persist in their unstructured, hot-tempered complaints gradually seems to be taken for granted. Indeed, many workers who have stories to get off their chest give the impression of being ‘black sheep’ talking about ‘black swans’ in operations. As managers judge these operational workers, though, hardening themselves against critique, they simultaneously cut themselves off from the underlying feedback being offered on operational coping.

In the meanwhile, operational workers face disincentives to share information, as disclosing and discussing their coping practices makes them vulnerable to criticism. In many cases, operational workers initially offer their feedback to managers. This seems more to get something off their chest than to explain how to optimize trade-offs or how operational coping works. The impression generally made is then a messy, incompliant and self-willed one. Although most managers admit to not always interpreting the rules to the letter, they cannot remove the barrier operational workers perceive to ‘confess’ rule deviance to their bosses.

A final, and more general, barrier for direct feedback, already touched upon, is that operational workers have only anecdotes to offer. Feedback is

primarily driven by rare and unique situations. From an accountability perspective, personal stories from operational workers mostly appear to be of ‘minor relevance.’ This may comfort the manager, but operational workers in the meanwhile spend most of their time and effort dealing with bottlenecks, inconsistencies and angry customers, each case in itself may have relatively little effect on average performance figures. Managers generally have much more to gain by optimizing ‘business as usual’ scenarios in which operational coping behavior usually does not seem to have its place.

Thus, face-to-face feedback from operational workers enables managers to recognize value conflicts and learn more about unplanned conflicts. Major barriers, however, prevent managers from exploiting this potential.

INTERIM CONCLUSION

Strikingly, many middle managers are more inclined to listen to their operational workers than to study their performance assessment systems. Interestingly, this signals that these systems are somewhat alienated from operations and with the consent of managers.

Overall, many unplanned value conflicts in operations remain unseen, even with hindsight, because the formal feedback mechanisms structurally sanitize conflicts and transform them into a specific need for an extra priority. So, managerial oversight again risks overlooking operational coping, in performance information as well as in face-to-face feedback. Managers may also develop a distorted view of operational coping, as deviant effects are much more visible than positive impacts. Consequently, the need to improve a performance figure is much more apparent than addressing the underlying cause of a deficiency. The next section discusses the way managers respond to the indirect signals of operational coping.

8.2 MANAGERS RELUCTANTLY FACILITATE OPERATIONAL COPING

Managers respond to unplanned value conflicts in operations both in coupled and decoupled ways. Both run up against difficulties. Generally, the decoupling reflex persists. Mono-value driven responses aim to improve performance figures correcting for norm deviances for each value separately. This decoupled, or mono-value, response tries to prevent and correct undesirable outcomes or situations. While managers at the same time do try to address

value conflicts within the real-life practices of operational workers, this usually engages them in new dilemmas. This multi-value, or coupling, response is geared to expect undesirable situations to happen and be prepared for them insofar and as best as possible.

MONO-VALUE RESPONSES

Symptoms of operational coping generally trigger a mono-value reflex. In response to deviant practices and deviant performance, managers often prioritize by rehearsing instructions, strengthening the rules and initiating new projects raising attention and priority for a repressed value. We illustrate this reflex with 'further task specialization' and what we call 'projectization.' These two types are, in a sense, opposites in the sense that further task specialization removes the responsibility for critical values from operational workers, while projectization adds extra responsibility for certain values into operations. In both cases, managers respond to conflicts from mono-value positions with decoupled coping.

"Starting working groups has become an automatism"

A manager acknowledged in disillusion that he and his colleagues "pay more attention to projects than to the operational processes themselves." Managers commonly create projects or working groups in response to emerging problems. Projects enable managers to organize a targeted approach, or a "ballistic" approach as Dörner (1996) words it, in which the spirit of McNamara is heard. Projects inject thematic attention for particularly those values that require extra priority in operations. Projects are generally triggered by a concrete problem and solve it by means of an intervention, either light or heavy, claiming dedicated time and attention of operational workers.

The systematic 'projectization' of managerial support to operational processes results in a constant stream of new projects. The urge to innovate, for example, typically involves many projects. Next, the number of projects on safety and security increased rapidly over the past five years, including risk awareness training, new procedures and new technical measures. A recent near-accident triggered a large project at ENEXIS to replace certain installations. At NS, after a conductor was killed on the job by a malicious act personal security of train staff became a new policy priority, triggering a large series of projects over the years experimenting with measures to improve security: cameras, more personnel, walkie-talkies, a stricter fine policy, changing the physical set-

up of stations, hiring security personnel and checking tickets at the entrance of platforms. Performance dips at NS led to projects on service, provision of travel information and punctuality. Typically, however, projects to improve punctuality generated significant effects that subsided shortly after the project ended, the project manager sighed. This triggers repetition of similar projects. At the same time, the discovery that train punctuality remained a guiding principle perversely even during calamities triggered projects counterbalancing the attention to punctuality by emphasizing the customer needs during a disaster as well. Signals of unsatisfied train operating companies triggered customer orientation projects at ProRail. And so on.

Projects enable managers to prioritize values ad hoc. These projects have a hidden ability to absorb value conflicts as they decouple the symbolic function of showing priority from the actual prioritization needed in operations. Managers demonstrate that a problem is being taken seriously as a project is started up. Implementation comes later. In the starting phase, projects do not yet encounter the complexity of value conflicts that are evident in operational processes. Initially, projects can be added on. They demonstrate the priority of an urgent matter without the immediate obligation to actually prioritize. This might explain why establishing working groups for a particular project has become an "automatism," as one manager said.

Projects are generally triggered by single values and aim to improve performance on that single value. Although projects often attempt to discuss many operational situations and possible side-effects for other values, the way these deliberations fit with ambiguous operational coping practices often remains obscure. Despite the abundant application of projects, their durable effectiveness appears contested within organizations.

Over time, these repeating mono-value interventions seem to feed a cynicism or, probably worse, defeatism within the organization. Many operational workers cynically say they dismiss the newest priority and the newest project, even when the intention is to improve their own safety. Experienced workers indicated they have participated in many similar projects and carried out many similar decrees without seeing a lasting effect, or a decrease of daily conflicts. One worker complained that "projects are carried out in a mechanical way" and "based on biased opinions." Several managers expressed difficulties in engaging operational workers in their projects. A manager regretted that "creativity does not get off the ground" in most of these targeted efforts. So, this cynicism may rise because these projects constantly

correct instead of getting it right in the first place; hammering on single interests and neglecting the potential of creative operational workers who keep trying to couple multiple values on their own.

All mono-value oriented project managers are ultimately caught playing 'Whack-A-Mole.' The aim of this game is to hammer a mole that may peep out of any one of many holes. When the mole is either missed or hit, it always reappears again from another hole (Figure 8.4). The mole represents a value conflict that may suddenly emerge. Managers identify a specific problem and 'hit it' with a new project. Like the mole in its underground network of corridors, managers may, in fact, only wiggle the underlying conflict back into operations time and again.

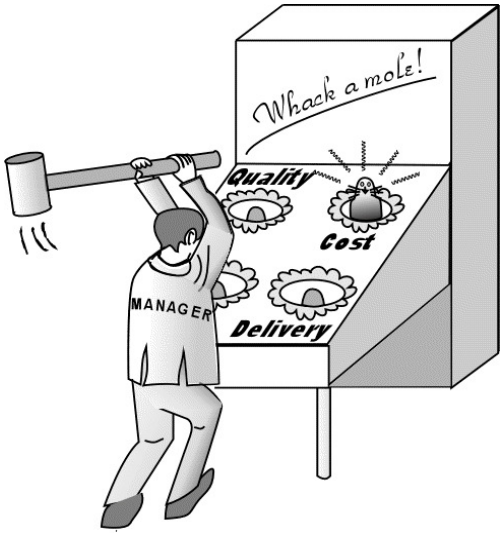

Figure 8.4: A manager playing Whack-A-Mole (Baudin 1999)

In the ultimate case, managers constantly recycle their interventions but only in ad hoc response to the side-effects of previous interventions. Meanwhile, competing values may hold each other in check, piling up counterbalancing measures over time to address the same recurring conflicts in operations.

"We assigned a new department to be responsible for the state of the network"

A second mono-value response to unacceptable performance figures is to withdraw responsibility from operational workers as well as from the managerial process in operational departments. Strategic managers frequently reduce responsibility and authority of operational departments in response to

increasing pressures to cope in operations. This may frustrate middle managers, since they lose part of their competences to respond to conflicts. Instead, remote managers, planners and their staff translate these conflicts to structural problems for particular values and design dedicated interventions accordingly. The intention is to remove conflicts from operations.

The coupling of values into a single job or department is often viewed as an organizational weakness and perceived as causing deviant behavior and underperformance. Therefore, managers tend to organize conflicts out of operations by rearranging functions, decoupling values and assigning the critical and vulnerable ones to newly created specialized functions in response to persistent value conflicts. ENEXIS, for example, has a dedicated department for safety issues and recently created another dedicated department to take charge of the state of the network in relation to the performance of the new subcontractors and to improve clarity about who is responsible for what.

Next, managers at ENEXIS became aware of operational workers' coping with safety and quality simultaneously. On occasion, mechanics were so involved in the challenge of repairing a difficult disturbance that they forgot to switch off an installation. This led to mechanics being hospitalized with burns. In response, management abolished the combined responsibility for safety and quality in one job. The two responsibilities were decoupled. A chief in the field was assigned to safeguard safety, and prohibited from doing the work mechanics do. This was management's solution to eliminate the risk that attention to quality would emergently compromise attention to safety.

Lifting coupled coping out of operations creates more structured processes. It seems to make operations run smoother and to strengthen safeguards for critical values. The risk, however, is that conflicts keep reappearing in operations, while critical responsibilities have been withdrawn to separate tasks or even corporate departments far from the operational core.

After further specializing operational tasks, trade-offs tend to land between individuals and between departments and occur increasingly unrecognized (Ch. 7). Tensions between values that used to trouble one worker or one operational department are now stretched over multiple departments or even multiple organizations (Ch. 6). For example, when connecting a new customer to the electricity network, there is a service norm for the operational department to provide the connection within ten weeks. Multiple other departments have supporting responsibilities in this process. In practice, after many planners and strategic managers used their time, middle managers at the

operational departments find their workers' time used up and face 'impossible' time constraints to complete operations in time and in good order.

Employee specialization may also trouble middle managers. They frequently perceive their subprocesses as being seized by 'far-off decisions' without having much participation in the decision making. Control room managers, for instance, deal with disturbances on the rail infrastructure. They have only one group of mechanics per technical expertise per region at their disposal. At times, two are needed. The limit of one is set in a contract for the private contractors. The middle manager knows neither why nor how to influence this contract. Such situations create a sense of impotence and injustice. The manager remains accountable when performance lags, but for unknown reasons contractual constraints impose restrictions on recovering from disturbances as quickly as possible.

In a similar example, managers at a local traffic control center had difficulty convincing planners that they had to find ways to reduce the pressure under which local controllers were working at night. This shift has its hectic peaks when controllers must arrange for the start of nighttime infrastructure maintenance. Planners of these maintenance jobs are in other departments and often exhibit little feeling for the work of the local controllers, even when the planners used to be controllers themselves surprisingly. In response to complaints, some rules of thumb have been drawn up to alleviate the workload of the local traffic controllers. These rules, to limit the numbers of starting maintenance job in a given period, appear rather imprecise though. Only the number of maintenance jobs is counted. No differentiation is made between big and small, standard and unique, difficult and easy jobs or complex and simple tracks. Neither are the rules sensitive to the other tasks controllers have besides coordinating maintenance. Apparently, a process manager concluded, the organization is incapable of dealing with trade-offs between workload and the jobs that need to be done. In response, this manager felt obliged to decouple, disciplining the unrealistic planners by rigorously canceling planned work now and then.

MULTI-VALUE RESPONSES

Managers do not completely ignore operational coping, though the above may give that impression. Managers with a more advanced understanding of coping recognize the need for shrewd workers and more support for operations. Frequently, managers find themselves incapable of making the right decision

for their operational workers, even with hindsight. In such cases, they rely on their workers' creativity and experience.

We found managers, middle managers in the first place, supporting operational coping in three ways: prescribing trade-offs, encouraging creativity in general and clarifying value conflicts with respect to the organizational objectives. In advance, managers try to prescribe trade-offs for operational coping. If that does not work, many managers come to understand that they would do better to encourage a critical and creative attitude among operational workers. To focus this second response, managers try to clarify value conflicts. These three interlinked managerial responses, more or less directly, *do* recognize value conflicts in operations. However, it proves hard to actually optimize operational coping, as these 'enlightened' middle managers meet inextricable dilemmas when supporting operational coping.

"If this is at hand, apply that scenario."

Managers are regularly confronted with the dilemmas of operational workers. Procedures appear inconsistent. A quarrel between operational workers holds up operations. The planning is too tight. Then, middle managers may discuss the situation with their superiors and fellow managers and try to come up with a trade-off together. Some conflicts can be mitigated by postponing or canceling tasks. Necessary trade-offs can be attuned to the organization's preferences, to make sure that safety gets priority over economic interests, for example. Next, managers may contact customers and stakeholders to anticipate their desires, to adapt their expectations or, eventually, to beg for less ambitious norms and performance standards. In critical cases, oversight bodies may set new rules or lower norms.

In practice, however, managers rarely provide an authoritative response to operational workers facing value conflict. Many workers say they never receive feedback on the daily troubles they struggle with. A common experience among workers is that when they cannot make sense of the conflicts they are in, managers usually cannot either. While workers may be surprised to receive a compliment from a manager for a deviant coping response, they become even more surprised when they discover that other workers receive the same compliment from the same manager for the exact opposite response. This is what happens. Managers tend to become either inconsistent or undirective when they give workers feedback on how they cope. Moreover, deliberation among managers about value conflicts regularly takes a while, sometimes

months or years. In the meanwhile, many trade-offs are accomplished in operations without guidelines.

To start, organizations often support operations with a general sense of priority in the form of a priority list or pyramid, for instance, derived from Maslov's hierarchy of needs from the perspective of the customer, in the case of NS. Such indicative hierarchies of values prioritize, for example, safety above quality, punctuality above information services. Although such policies on global priorities may not be widely known and used, the sense of priorities is generally shared. In conflict situations, however, global priorities are not always guiding. For example, information and service may often be prioritized above punctuality, although they are generally thought of as less important. When train platform monitors display incorrect information, for example, a conductor may casuistically accept a delay to inform passengers so as to ensure that no one takes a seat in the wrong train.

More detailed guidance is provided by a book of scenarios drawn up by and for controllers in their logistic processes. This collection of scenarios details trade-offs in terms of 'if A, do B.' For example, when Train X is delayed by more than 15 minutes, Train Y is cancelled. These scenarios are based on operational experience and formalized once they are agreed upon by the parties involved. Trade-offs generally come about "when we sit around the table," "keeping a finger on each other's pulse," middle managers explain. These trade-offs are established with the consent of operational workers, but it is not a highly transparent process.

These scenarios are considered successful in reducing communication burdens and preventing disturbances from escalating into larger system failure. In practice, however, controllers run the risk of using these scenarios too much when coping. Controllers become less sensitive to contexts when they use the standard scenarios absent-mindedly. The agreed standards are not necessarily optimal responses. Disturbances generally have more than one cause which means there can be no standard response. The ability of traffic controllers to adjust for the total of many small disturbances and deviant circumstances, apart from the standard responses, remains crucial for the reliable provision of rail tracks. A middle manager described the use of scenarios as creating a "make-believe certainty, as if there is an ideal solution" and as discouraging controllers from thinking for themselves. Applying scenarios saves time, but many conflicts deviate from standard conflict situations. Standard scenarios cannot fully account for an extra unplanned train, a sudden need for an extra

delay and an extraordinarily large number of passengers. Weather conditions and associated risks can make a significant difference, in passenger comfort as well as system robustness. In these cases, the traffic control process is served by discerning application of the scenarios with reasoned adjustments. The problem, thus, is that formalized priorities discourage operators' situational awareness and creativity, as well as the diversity of their responses. Making things more difficult, managers tend to lack a full understanding of how the standard scenarios are actually used in operational practice. Notwithstanding, the Ministry of Transport requires ProRail to account for the treatment of disturbances by the Traffic Control Department in compliance with these standard responses in percentages (Figure 8.2).

This is not to criticize this brave, successful and possibly crucial attempt to support operational coping. The scenarios have helped the industry escape high communication burdens, causing quarrels and needless discontinuities. But the scenarios only succeed by simplifying the actual conflict situation. Moreover, the use of scenarios tends to formalize a highly contingent process, reducing communication perhaps too much, which makes the required constant adjustment and learning seemingly redundant.

"There are no rules for conflicts"

Instead of prescribing coping responses, many managers have the guts to admit they leave trade-offs unguided. They realize that these trade-offs in operations cannot be prescribed but rather controllers and train staff have to be given discretion "to run their business," to use their "creativity" and "expertise." These managers strongly encourage operational workers to "stand on their own two feet." Of course, circumstances often made operational workers to do so already. Some middle managers devote themselves completely to this mission.

Accordingly, these managers describe their job as overseeing 'how' operational workers get things done instead of looking at the output generated. Deviant performance is not regarded as a reason to necessarily intervene, but as a possible reason to talk about why operational workers did what they did. In the most extreme example a manager said he "burned all instructions," figuratively, explaining "the only regulations left are the ones between the ears." In other words, there are "no rules anymore, just responsibilities and means." Instead of overseeing accountable behavior, such managers see their role as "to get workers acting from their inner motivation" and "to activate

operational workers to think." Their basic tool, managers said, is to sustain a constant and lively dialogue about daily work in an equal relationship.

Particularly managers at NS and ProRail currently go through a process to gradually acknowledge that instructions are incapable of prescribing what is right or wrong in the value conflicts train staff face. For example, conductors were released from the obligation to inform passengers when a train has a departure delay, even though this information directly relates to a key indicator in the performance contract between NS and the Ministry of Transport. Instead, train staff are now formally given the opportunity to decide, to trade-off, whether to use their time to ensure departure as soon as possible or whether there is time to inform passengers of the cause of the delay. No exact way to cope with the dilemma is dictated. Of course it matters whether 3 or 300 passengers are waiting for the train, but the weighing of the circumstances is left to the conductor.

This discretion creates classical dilemmas for managers as well as for operational workers. Discretion clouds accountability for what workers do and the managerial authority to enforce rule compliance. It can cultivate outdated and ineffective routines. Moreover, discretion works out quite differently for different operational workers. Some respond well. Some are indifferent. Others are 'fearful' of more decretive authority. They say it deprives them of the certainty of knowing what they are required to do. Some workers prefer taking the easy way when they are not bound by strict instructions. Operational workers might not resemble the rosy picture managers sketch of 'skillful experts.' Operational workers seem to prefer describing themselves as having 'horse sense' more than using this pretentious word 'expertise.' Instead of applying skills, they might 'just do anything' without a clear goal orientation in situations that are 'not so concrete' to them and without seeing what they are doing. The managerial dilemma is to allow for discretion and deviations without any guarantee of a positive influence on the resulting trade-offs.

As a final illustration, 15 managers from an operational department discussed how to grant discretion responsibly at a workshop. Strikingly, the group agreed on the importance of decretive authority at the operational level and the role of workers' feeling of responsibility. Yet these managers held widely diverging and incompatible ways of granting discretion and trusting workers.

"We see trade-offs that conductors do not see and ask them why"

As discussed in Chapter 7, some priorities just emerge in operations. Time pressures may overrun the field chiefs of mechanics and acute stress situations may surprise traffic controllers. In response, these workers switch to more implicit coping strategies frequently without recognizing, even afterwards, what actually caused the trade-offs that emerged. Some managers, therefore, put much effort in the consciousness of coping workers by making value conflicts more visible. For example, managers frequently discuss and try to clarify value conflicts while accompanying operational workers in their job. One manager described, "We see trade-offs that conductors do not see and ask them why [they acted as they did] and how to do it better."

When managers are off the scene, which is mostly the case, operational workers can be given real-time information to illuminate the trade-offs in their daily work. Without directly prescribing what to do, leaving room for creativity, managers can elucidate the strategic preferences of the organization in operational coping. A transport controller at NS, for example, indicated a desire to see a list of train connections, ranked by importance, when deciding on how to respond to a disturbance. Another controller wanted to know the number of passengers per train or the cost in Euros per minute of delaying or canceling certain trains. Such support mechanisms for operational decisions, common in air traffic control, enable operational workers to enquire into the possible trade-offs they are making.

There are dilemmas in providing real-time information though. Somewhat counterintuitively, real-time information often makes situations more complex and opaque. A regional traffic controller described a new system that managers had provided. It specifies in more detail how to react to particular disturbances. These efforts had worked out counter-effectively in this controller's view, "The more specifications, the more you come to depend on the circumstances." The new system also seemed to claim a lot of extra time for communicating. As a result, more time was spent on details at the expense of the broad overview and critical aspects. A more general problem is that, during conflict situations, operational workers often simply lack time to gather, process and use the real-time information they are offered.

Real-time information is often biased by mono-value managerial interests. It therefore may 'elucidate' only one part of the value conflict. For example, a strict focus on punctuality information incites controllers to cut trains from the timetable. The punctuality improvements are much more visible

than the passenger interests sacrificed. In a test case, conductors were provided a sound signal in their handheld computer indicating the moment of planned departure. Yet conductors did not appreciate this real-time information. Rather than helping, the signal generated extra stress in the conflict situations they were in.

As a final example, the strategy to elucidate conflicts pertains particularly to ProRail's efforts to respond in a neutral way to conflicting interests between many train operating companies. ProRail pursues transparency in this role. The risk, however, is that elucidating these conflicts jeopardizes the "actual goals," as operational workers and some middle managers perceive them, that remain structurally under-articulated.

> *"Being predictable and reliable is relevant, because they are key performance indicators, but they can never be the goal. (…) The final goal is optimal utilization of the available slots. The difficulty, though, remains to make this concrete or specific."*
> ProRail middle manager at a regional traffic control center

8.3 DISCUSSION: DISCONNECTED COPING PRACTICES

This chapter explains how middle managers in the hierarchical line respond to unplanned value conflicts in the operational process. Similar to our study of planning processes (Ch. 6) and operational processes (Ch. 7), the organization faces structural difficulties to recognize and address conflicts in daily management processes. So, all in all, we can conclude that a structural amount of trade-offs emerges rather than being a managed response with respect to service delivery and the daily realization of many public values.

The managerial response to the unplanned value conflicts generally appeared to stay at considerable distance from the operational coping practices. Intricate interdependencies between the public values that emerge in operations structurally do not penetrate higher managerial levels. Eventually, the operational workers at the front lines of their organizations thus appear to be the only ones who really face these challenges to cope. Consequently, operational coping tends to remain ill-understood among managers, as the feedback managers receive mostly contains weak and indirect signals.

When managers do become aware of coping practices, the response is ambivalent. Managers try to eliminate operational coping but try to maintain it

as well. On one hand, managers commonly correct for operational coping with decoupled interventions, such as a dedicated project. A project injects thematic attention to a certain value. Another option is to cut back responsibility and authority in operations, further separating tasks institutionally. Besides their single-purpose effectiveness, these responses tend to push around value conflicts instead of actually addressing them.

On the other hand, the opposite managerial response was found as well, but appeared rather problematic. Managers often disapprove but maintain operational coping at the same time, either by tolerating it passively or by actively stimulating a mindful attitude. This response, however, must overcome many dilemmas before support can actually be given for the optimization of trade-offs, if at all. Ultimately, operational workers currently appear to cope with value conflicts without much managerial support.

The same is to say that we observed a fundamental disconnect between managerial and operational coping. This disassociation may have harmful effects. It could trigger a vicious circle, because when managers increasingly rely on performance information, they come to understand less and less about operational coping. The constant corrective use of mono-value responses, triggered by aggregated performance information, has the risk of disintegrating into a senseless ritual, eventually leaving the organization a cynical and inert bureaucracy.

Although this mono-value coping constantly misses the point of many dilemmas in operations, we must admit that the above reflections on its effects seem too pessimistic. A paradox emerges. Conceptually, mono-value coping does not appear to be a sensible way to manage operational trade-offs. Optimizing for one value is mostly suboptimal from a trade-off perspective. As value conflicts go unrecognized, mono-value responses may constantly trigger other mono-value responses, each successful at the expense of others. In fact, it resembles a basic pattern of failure “to think in terms of isolated cause-and-effect relationships” (Dörner 1996, p. 35). Yet, the paradox is that these flaws do not show in the performance data. This gives rise to more positive hypotheses.

Despite its bureaucratic connotations, mono-value coping might actually be effective as a management strategy. This decoupled approach may constitute a polycentric arrangement of checks-and-balances that outperforms more centralized alternatives of coupled coping. While this strategy seems to be the equivalent of a person pushing all the buttons to get a jammed machine started

again, it may actually work. Over time, cycling interventions may leap into "[functional] spiraling rather than flip-flopping" (Thacher and Rein 2004, p. 467-8). In other words, utility service delivery and the realization of associated public values may actually benefit from structurally *not* recognizing value conflicts, leaving many intricate operational interdependencies among values seemingly unguided.

We can explain this paradox when we relate our observations to the organizational concept of loose couplings. [iv] This concept depicts two elements that are both distinctive from each other and responsive to each other (Orton and Weick 1990, p. 205). Accordingly, organizations can be described as arenas for complex ongoing processes with loose couplings either among individuals, among groups, activities or various other units of analysis (*ibid.*, p. 207-10). We recognize the occurrence of loose couplings between the coping practices of managers and operators.

According to Weick (1995, p. 70), loose couplings indicate a type of organization that does not pursue specified goals in a highly organized manner. Whereas managers and planners generally pursue a reversal of this 'chaotic' situation, Weick and Orton (1990, p. 211*)* plead for 'compensation' instead of 'reversal.' In this way, the authors aim to maintain the functional part of loose coupling. Possible compensations for loose couplings are shared values, by means of cultivating an ideology or identity, enhanced leadership and skills to make sense of environmental demands and what the organization is actually pursuing, in retrospect. Positive effects of loose couplings that various researchers have noted are modularity as a resource for resilience, requisite variety and behavioral discretion (*ibid.*, p. 217).

These positive effects of loose couplings seem to apply for the fairly disconnected coping practices that enable the organizations to buffer competing public values. While many managers and planners structurally address competing values in decoupled ways, conflicts structurally displace to the operational processes. Operational workers are, then, left to their own devices, solving many conflicts in discretion, in a variety of ways and relatively independent of their superiors or colleagues. In this way, these loosely disconnected coping practices are flexible to deal with conflicts under various conditions.

So, for the time being, managers can afford not to manage many unplanned trade-offs, but there is no conclusive evidence on the effects of coping with them. First of all, the performance figures do not show all effects

to public values. Performance figures neither show the organizations' actual potential. Most standards are merely based on historical performance. Figures may rise despite counterproductive mono-value coping responses. Next, there is a fundamental uncertainty about how these coping responses actually add up to the realization of public values, now and in the long term. What stands out as plausible, though, is that the dominant decoupling strategy also has its functionality besides its evident drawbacks. Possibly, these drawbacks are somehow currently well compensated in the organizations. The performance figures would indicate that. For instance, a major advantage of leaving trade-offs unguided is that managers do not lose themselves in micromanaging individual conflicts but allow discretionary authority to operational workers who, then, can approach many cross-pressures in their own ways. The disassociation of managers implicitly facilitates that: managing by not being around.

These conclusions give cause for concern. The emergent disassociation between coping practices currently allows the industry to buffer many cross-pressures but also to mount them up unnoticed in operations. As pressures rise, the tuning of coping practices tends to get more and more challenging as their interactions become less predictable (cf. Weick 1995, p. 130-1). These 'loose couplings' between coping practices countervails these pressures, but, at times, the organizational response consists of completely disconnected coping practices. In other words, the possibility to compensate for these loose couplings and to adapt to the rising cross-pressures is finite. When organizational members turn their back on each other, these limits remain unrecognized and coping strategies become increasingly maladjusted.

The two conclusive chapters further elaborate on the current countervailing power among coping practices in the three organizational processes (Chapter 10) and point out its inherent instability (Chapter 11). But first, Chapter 9 broadens our empirical findings with reflections from the perspective of the public oversight environment. Do oversight bodies care about coping? Should they be worried? How does oversight, and the way it is currently organized, affect these operational organizations in their coping behavior?

NOTES ON CHAPTER 8

[i] The first seven graphs are based on the performance in the first quarter of each year. This information was found on the website of NS, consulted in August 2008. The next five graphs on safety are published by permission of NSR Veiligheid & Regelgeving. Wounded and killed passengers relate to train accidents, collisions and derailments. The last three graphs present figures from the corresponding NS annuals reports.

[ii] The first nine graphs present information from quarterly performance reports by ProRail for the Ministry of Transport. The ninth graph only contains information from the last three quarters.

[iii] Annual reports of ENEXIS (at the time still Essent Netwerk) provide specific information on safety, customer appreciation, revenue and personnel only since 2006 because of the recent unbundling.

[iv] Notice that the concept 'loose couplings' is completely different from 'coupling' when we depict coping strategies.

Chapter 9 Should oversight bodies worry about value conflicts?

So far, we have reported on various coping strategies within network-based industries that deal with multiple public values in the daily provision of utility services. Surprisingly many significant trade-offs occurred without the underlying conflict being recognized, as the industries systematically divided their attention among multiple oversight objectives.

Zooming out now, the same pattern can be discerned for the oversight system surrounding these industries. The oversight environment is highly polycentric isolating public values in specific contracts and understandings. Each oversight body maximizes the realization of its own objectives. Trade-offs between oversight objectives draw little attention at this level.

This chapter forms a link between the empirical core in the previous four chapters and the coming two chapters with conclusions and implications. We use our extensive empirical analysis within the coping industries to reflect on the role of oversight. Our question is whether oversight bodies *should* occupy themselves with trade-offs among public values. We consider that oversight bodies do have an effect on how the industries cope. We show that these effects remain structurally unnoticed when oversight bodies mainly rely on norm-driven feedback.

9.1 OVERSIGHT ISOLATES ITSELF FROM TRADE-OFFS

We held additional interviews with oversight body representatives to gain insight into the perceptions of their own effectiveness in relation to other oversight objectives. We also confronted our respondents with the implicit trade-offs we found in the case-study industries. In six interviews, we met with eleven representatives of eight oversight bodies including the Transport and Water Management Inspectorate, the Dutch Safety Board, the Ministry of Transport, consumer organizations ROVER, Ouderenbond and Consumentenbond, the Office of Energy Regulation and a Member of Parliament. We did not work out the enormous variety among these institutions in activities and perceptions, but we gathered impressions that stood out among this variety. All respondents dealt with the industries concerned.

When discussing our findings with these oversight representatives, they generally responded that the industries' coping strategies were eventually of no concern to them, particularly not the implicit and detailed operational ones. Some coping practices were found suspicious but not per se alarming. Although these representatives did show interest in our topic and findings, they were generally reluctant to consider trade-offs within the industry as meaningful for them. Prioritizing among public values was not their competence, respondents at dedicated oversight bodies generally explained.

> *"It is not up to us to establish trade-offs [at the level of the industry]. Our task is laid down by law and we execute it."*
> Oversight body representative

> *"We almost never make a trade-off in which we let down some customers to serve others or to win new customers. That is not our role. Just let us criticize and add the more qualitative indications."*
> Consumer organization representative

Most dedicated oversight bodies stated that setting priorities among public values is the domain of politics. Their assigned task to oversee the industry was framed as an outcome of a political and legislative process programming oversight priorities and objectives. This would explain that many trade-off issues are considered inopportune in the daily practice of oversight. Even when we raised the possible trade-offs that oversight interference might induce, the oversight representatives generally referred back to their core task, safeguarding specific objectives, as legally defined. Oversight bodies, for example, saw their task as "to be as sharp as possible on safety." Indeed, sector-specific laws (Ch. 4) assign oversight bodies the right to set conditions and to impose levies for specific public values.

Perhaps this consideration that political trade-offs underlie oversight interventions is normative rather than descriptive. Then, it is the way things ought to be. However, we see politicians parrying trade-off issues all the time. When the mandated safer departure procedure unexpectedly affected punctuality performance, this problem was for NS to solve (Tweede Kamer 2006a), instead of a political choice between safety and punctuality. Although political influence can get very detailed at times, politicians rarely occupy themselves with actual trade-offs in operations. Instead, politicians generally

protect values against trade-offs like the rest of the sector. As Tetlock (2000) describes, politicians often seem caught in a "demosclerotic stranglehold," fighting for single interests because giving in would be unacceptable for the demos politicians represent. Likewise, counting recent parliamentary questions[i], we found that only one out of ten questions on the rail industry actually accounts for ***multiple*** public values and possible trade-offs. Nine out of ten questions address a single demand. At the political level, trade-offs constantly arise but often from predisposed mono-value standpoints and ultimately "without reason" as the interviewed politician put it.

Preceding Parliamentary interventions, oversight bodies generally assign the responsibility for integrating decision making on multiple public values to the Ministers (cf. Tweede Kamer 2009, p. 25). In practice, this role seems limited though. For example, security of supply in the Dutch electricity industry has constantly been more than 99.99% in the past ten years (EnergieNed 2008). This reliability is the main performance indicator and highly critical to society, but there is no ministerial trade-off underlying it. Not even a minimum norm for security of supply has been articulated. Although this matter is highly political, ministers, past and present, have not explicitly considered the resources needed to attain and sustain this reliability level. Neither does a minister decide or oversee whether the amount of resources that would be released by aiming for 0.05% ***less*** security of supply could be better spent on a lower tariff or a more flexible network to allow for more sustainable energy sources. Besides absent norms, Ministers sometimes even omit to articulate which ***values*** should be safeguarded in these networks, for instance regarding public ownership of shares, as the Dutch Court of Audit (Algemene Rekenkamer in Dutch) remarks (Tweede Kamer 2009, p. 26).

Ministers generally become involved when operational trade-offs led to clearly undesirable outcomes. At that time, they usually have no options left but to condemn the outcomes and their cause. Illustrative in this regard is the explosion of a fireworks warehouse in the Dutch city of Enschede in 2000. After the calamity, Klaas de Vries, Minister of the Interior at that time, rallied against tolerance for people in operations taking shortcuts and breaking rules while claiming that rules conflict.

> *"There were many books, manuals and what not, but nobody thought that breaking the rules could cause catastrophic failure. Rules conflict, you heard*

> *people justifying. If only those people would start doing the things that do not conflict, we could solve those few conflicts at a later time."*
> Klaas de Vries, former Minister of the Interior (Vuijsje 2006, p. 61)

The point made here is that when outcomes are clearly undesirable or catastrophic, conflicting rules can not be an acceptable excuse. At any other moment in time, though, the main concern from an oversight perspective seems that the necessary trade-offs eventually show in sound performance figures, with or without conflicting rules. In broad outline, the industries are considered 'black boxes' and trusted operational discretion as long as they churn out the desired outcomes. When 'operational complexity' requires industries to deviate from rules and standards, the idea is that industries give oversight bodies feedback on the possibilities how to solve it and how to arrange for trade-offs. Our findings, however, demonstrate that this feedback loop structurally fails. Accordingly, some oversight bodies admitted they hardly ever receive feedback on the new policies they propose. Moreover, relations between the industry and oversight are not always models of trust and, therefore, often inapt to share information on conflicts and not all conflicts are considered negotiable or even discussible.

In contrast with the foregoing, many oversight bodies are still open and alert to the necessity of trade-offs. For instance, "There is a knock-on-the-door system. If trade-offs really are a problem, the companies can always talk with us. Ultimately, they need to deal with the minister though," a representative of an industry oversight body explained. Despite the reluctant stance towards operational trade-offs, oversight bodies commonly consult multiple stakeholders in the industry before formulating new policies. It also works the other way around. Consumer organizations explained that NS regularly consults them to advise on trade-offs. "The disadvantage of being consulted, however, is that the process means you can no longer say 'no' in the end," a representative explained. To prevent this, they revert back to their role as a reactive action group.

The Transport and Water Management Inspectorate explicitly addressed concern about interference between oversight bodies. Its annual work plan warns that multiple oversight bodies may cause disproportionate pressure, as each inspection division visits the inspection sites separately (V&W 2004, p. 5). Accordingly, the Inspectorate conducted research on the pressures of oversight in the rail industry in general. The Office of Energy Regulation

conducted research on the effect of its tariff regulation on the viability of network companies. The fear was, and still is, that efficiency standards stimulate companies to postpone investments in long-term security of supply (cf. Tweede Kamer 2009, p. 26). As long as side-effects are not clearly visible, though, oversight bodies temporarily suspend their worries.

INTERIM CONCLUSION

Oversight bodies are dedicated to their own objectives. Accordingly, they have little interest in trade-offs, as long as their oversight objectives remain unharmed. This task orientation, removed from operational complexity, may make oversight less prone to regulatory capture. Industries receive operational freedom to arrange for operational trade-offs but without the possibility to exploit their expertise on trade-offs and to contradict the oversight bodies on demand. Meanwhile, oversight bodies can specialize in enforcing the attainment of their objective acting as firm defenders of public values. What is more, this mono-value orientation of oversight bodies seems efficient, focused and clear.

So, it is understandable that oversight bodies are professionalized in these decoupled responses. At the same time, however, it may surprise that oversight presumes to perform its task effectively by ignoring trade-offs among public values. The previous empirical chapters showed that the industries face major obstacles in seeing and communicating the intricate interdependencies of many oversight objectives and interventions, particularly when it is not an easily explainable norm conflict but the mere quantity of instructions and coping pressures causing undesired trade-offs. The industries are required to provide oversight bodies with feedback when conflicting oversight objectives are inevitable, but, to a great extent, industries cope implicitly with these conflicts. This would imply that the industries can neither state what oversight pressures and inconsistencies they can handle and what trade-offs are required.

The logic of a fragmented oversight system, thus, becomes internally inconsistent. Oversight bodies guard their objectives against undesirable trade-offs without either the possibility or the intention to recognize the trade-offs that interventions induce. The obvious risk, then, is that the oversight system constantly produces its own challenges triggering future interventions, like a dog chasing its own tail.

9.2 OVERSIGHT AFFECTS THE INDUSTRIES' COPING

Although oversight bodies generally believe they do not need to worry about trade-offs, they have a significant influence on daily coping strategies at the same time. We highlight two mechanisms that describe the effects of decoupled oversight in the context of the trade-offs occurring. A third mechanism argues how the increase of oversight interference might incrementally erode the ability to cope inside the industries.

MECHANISM 1: INTERACTING OVERSIGHT POLICIES CAUSING TRADE-OFFS

Oversight bodies regularly induce trade-offs without being accountable for them. Multiple oversight objectives converge in operations, triggering emergent trade-offs. Ideally, the industries give feedback on the necessary trade-offs in advance. Yet many examples again show the difficulty of anticipating trade-offs. Interventions from outside the industry in particular tend to take the infrastructure system, including the trade-offs within, for granted. The following list of examples show how multiple oversight policies interact in unanticipated ways triggering undeliberate trade-offs.

Making a third pay the price

An environmental policy created subsidies for decentralized power generation. This policy triggered many glasshouse horticulture farmers to install electricity generation equipment and feed power back to the network. For the network distribution companies, however, this meant that investments it had made in the network could not be recouped. They lost major customers. The subsidies took for granted the availability of the infrastructure. Indeed, it is available, but it has a cost. In the meanwhile, tariff regulations did not automatically account for the effects of these subsidies. The result was that glasshouse farmers used the network for free and the dividend for public shareholders was reduced. Thus, subsidy and tariff regulations combined to inflict a price on a third party. Moreover, network companies had to invest resources to prepare the network for decentralized power generation, in competition with the many other tasks in its yearly work package. More time spent on decentralized generation meant, for example, postponing replacements geared towards long-term security of supply.

Discovering unforeseen risks

An analysis of incidents by the inspection authority of the Ministry of Transport reopened debate on the safety situation around doors. As a result, a new safety procedure for passenger trains required them to depart only once all doors were closed (Ch. 5). Unexpectedly, the small delays caused by the new procedure at each departure accumulated to an impact of 1.5% less punctuality on a yearly basis (BCG 2005). In this case, NS made a conscious trade-off, mainly between punctuality and safety, but ultimately was surprised by the severity of the effects. In response, the Ministry of Transport condemned the trade-off and suggested other safety measures with fewer side-effects (Trommelen 2006).

Shunting demands from pillar to post

A new timetable design for the Dutch rail system was drawn up for 2007. To accommodate growth of passenger numbers and to create a more robust system, NS drafted the schedule in such a way that the number of passengers having to change trains increased as well as average travel times (Van der Heijde 2006). Changing trains is not only inconvenient but also reduces the accessibility of train services for people with reduced mobility. The trade-offs massively mobilized action groups and political parties in protest.

The trade-offs, however, were at least partly a late response to a ministerial decision in 2000 to cease government investment in the main rail network. This decision was itself a response to the billions of euros needed for large rail infrastructure projects, such as the high-speed rail line and the Betuwe line, apart from the main network. At that time, the minister did not foresee the trade-offs that would become necessary in the new timetable seven years later. Nobody knew or could predict either the logistic possibilities or the actual need for those trade-offs. Between 2000 and 2007, punctuality performance dipped dramatically and then slowly recovered. Labor unrest blocked the most obvious ways to improve punctuality. Also unexpected was the growth of passenger numbers in recent years. This required more and longer trains which, in turn, reduced the robustness of the system.

The progression towards a denser network, indirectly induced by the minister in 2000, also may have gradually affected safety. In 2005, the chairperson of the Dutch Safety Board, for instance, warned in the media that putting more trains on the rails would jeopardize safety (e.g. Van Vollenhoven 2005). Conversely, protests against the trade-offs in the new timetable led to an

elaborate parliamentary debate. This debate put forward a long wish list for faster connections, extra trains and extra stops without weighing the consequences for safety. Ultimately, these wishes proved more harmful than helpful to passengers in terms of punctuality and capacity and, for that reason, were rejected (Tweede Kamer 2006b).

Taking the wind out of the sails of another

The Dutch Office of Energy Regulation offers efficiency incentives to the network distribution companies to reduce the profits in this industry. The office claims to have made the industry 20% more efficient between 2000 and 2005 (Zijl, Haffner and Mulder 2008). At the same time, public shareholders have imposed additional efficiency standards to ***uphold*** profit levels. This makes the profit regulation questionable. The trade-offs induced by these two efficiency standards remain uncertain. The search for unintended consequences has already started. In the meantime, public shareholders use the high profits they earn from the energy companies for unrelated activities, such as to fund local recreation, education and transport facilities.

Blocking the path to optimization

The government wants to reduce the noise nuisance caused by rail traffic in densely populated areas. A solution may be found either in the rails or in the trains. EU policies curb national governments' ability to subsidize service providers in the rail industry in order not to disturb the market. These constraints, however, unintentionally induce government to award noise-reduction subsidies to the infrastructure managers without considering whether, for example, baffle boards along the track are more or less cost-effective than noise reduction measures in the wheels or on the interface of wheels and rails which do concern the market of train operating companies.

Taking the network for granted

A market seems to be developing for electric cars. Many charging stations will be installed to facilitate this development. The customer and the commercial provider of charging stations will make arrangements for installing these stations, but the trade-offs for the electricity distribution company are not represented. The way customers and providers organize the use of charging stations, however, could have considerable consequences for the capacity of distribution networks and the investments that need to be made. If many

customers charge their car at the same time and place, for example, considerable additional capacity might be required. Yet, the availability of the network is taken for granted by customers and commercial providers who make the deals. The risk is again that the network distribution company is required to invest while commercial parties take the profits.

Underestimating implementation costs

The Dutch Minister of Economic Affairs introduced legislation that would require 'smart' electricity meters to be installed for all customers. The meter would produce graphs and figures to show customers fluctuations and peaks in their use of electricity on a continuous basis. Experts predicted that such a meter would make customers more aware of their electricity consumption, and help them to reduce usage by up to 10% (Brugh 2008). This would also reduce electricity bills and raise the affordability of the service. However, installing such meters would compel the network companies to invest some 3 billion euros (Haan 2008). Moreover, the Dutch Advisory Board on Administrative Burdens calculated that smart meters would increase the companies' administrative burden by some 1.2 billion euros (*ibid.*). Other government policy, in the meantime, aims to reduce such burdens by some 0.3 billion euros per year. Obligating the distribution companies to make the extra investments, moreover, might affect the viability of the companies or even induce bankruptcy, particularly for those experiencing financial setbacks in other areas (Westers 2008).

Forcing through political urgency

Political pressure led to a deadline being set to complete the so-called 'Betuwelijn,' a large infrastructure project for rail traffic dedicated to freight. Meeting this deadline, however, pushed the project team to make all kinds of pragmatic choices. Many trade-offs remained invisible to the outside world and some of them even to the project team.

> *"These choices are so implicit. They cannot be made in a balanced way. For example, safety rules crowd out interoperability. A new project was started for interoperability, but with major limitations when it finally finished.… [And another example] Breaks appear good for safety, but for capacity they're not optimal."*
>
> Project leader at ProRail

Interim conclusion

If these eight examples represent the way trade-offs are dealt with on the side of oversight, there seems to be a lack of attention for the trade-offs interventions induce. Unanticipated interdependencies between multiple values seem to cause many undeliberate trade-offs: Political debates break out once trade-offs have already been made; the wider consequences of seemingly simple decisions, such as to reduce costs and maximize the use of capacity, go unrecognized; and the expenditure and effort necessary to maintain infrastructure services are taken for granted.

MECHANISM 2: STRUCTURALLY OVERSHOOTING OVERSIGHT OBJECTIVES

In general, when oversight bodies perceive threats to the realization of their objectives, their main response is to intensify their influence on the industry so as to bring the desired standard back into reach. This is their legally mandated objective, but it does not necessarily correspond to the actual effect they have. As long as the adverse consequences of trade-offs remain unrecognized, oversight bodies risk overshooting their objectives.

Oversight bodies currently find themselves in a young and dynamic institutional environment. By trial and error, they are currently learning the new interplay of forces as they go, making assumptions, initiating interventions and analyzing their effects afterwards. The flaw, however, is the obscurity of error. If performance rises on a certain oversight objective, the concerned oversight body is generally encouraged, citing the improvement as proof of the success of its interference. If performance falls, oversight is stimulated to intensify its efforts as well. As such, oversight interference tends to accumulate and is seldom confronted with its actual costs.

Varying on the previous mechanism, three examples show that certain oversight objectives are structurally overshot.

Enforcing fair market conditions

Fair market conditions are enforced in the rail industry for economic reasons. A fair market is considered fundamental for a self-regulating industry. Many rules are operationalized to attain such market conditions. But the exact transaction costs and trade-offs induced in operations remain largely unknown. In practice, market rules may corner operations with multiple intervening forces. Since industries tend to choose the path of least resistance, the highly operationalized oversight objective of maintaining fair market conditions may easily be

overshot. It may compromise, for example, passenger interests, which are under-articulated in the infrastructure manager's job.

Ensuring non-discriminatory treatment of train companies receives relatively great emphasis at infrastructure manager ProRail. It is one of their main tasks. The franchise assigns it this duty. In the planning phase, ProRail provides train companies 'the right' to use a rail track. In operations, this right is transformed into a hard decision rule. Delayed trains cannot violate this right. The Office of Transport Regulation further oversees this right. Train companies contact this regulatory office when they feel mistreated. In contrast, serving passenger interests is not even assigned as a ProRail duty and, therefore, is formally neither operationalized nor sanctioned.

In practice, local lines are regularly run by train companies other than NS. When a slow local train competes for the same rail track with a delayed NS fast train, traffic controllers now make opposite trade-offs than in the past. In the former situation, NS would consider favoring the fast train over the slow train because of the different passenger interests in both trains. Moreover, delaying fast trains often has greater consequences for network robustness than delaying a slow local train. In the new situation, traffic controllers were obliged to favor the local train over the fast train, under the threat that the new train companies could otherwise take them to court.

In the past, traffic controllers had routines for solving these conflicts: slightly delaying one or two trains to allow an unwieldy freight train through. As each small train operating company can now appeal to their 'right' to hold on to their scheduled rail track, traffic controllers find their solution space substantially reduced. This 'right' automatically settles operational value conflicts to the advantage of the non-discriminatory principle, forcing controllers to find alternative solutions, often with more negative consequences for passengers.

This 'right' to a scheduled rail track even prevents ProRail from intervening when a certain rail path is sorely in need of maintenance. As long as the system is still usable and safe according to the norms, ProRail cannot simply decide to do repairs, even when the rails are fast deteriorating. If ProRail did not anticipate this need for maintenance in the planning phase, train companies can only be requested to give up their right. If one company declines this request, which happens occasionally, there is no alternative but to accept the deterioration and its financial consequences and implement speed limits instead, affecting many other train companies and the robustness of the

network. So, oversight bodies might systematically overshoot the desirability of fair market conditions without considering the costs, first to the industry and later to stakeholders.

Condemning blackouts

Responses to the constant stream of incidents and accidents are a major source of oversight pressure. The media seems to catalyze these oversight interventions. Severe events in utility sectors usually are extensively covered in the media. Like a flash, parliaments seize these signals and automatically interpret them as proof that values are not in fact safeguarded. Apparently, they lack more systematic proof despite heavy regulation. Negative publicity does not only have a high impact on politicians. It may also directly decrease the performance figures of stated customer satisfaction. Negative publicity is serious business for network-based companies, because huge efforts are required to outperform it or to compensate with positive publicity. In effect, the industries are compelled to come up with solid responses, increased priority, new proposals and extra safeguards when service interruptions or other undesirable events occur, because otherwise the trustworthiness of the industry might reach an absolute nil. Moreover, this 'shaming' of utility industries possibly increases the troubles mechanics experience with angry customers or the aggression train staff face in public transport.

A major blackout in Haaksbergen illustrates how an event puts pressure on industry to revise their preferences. This small town at the end of a branch of the electrical network triggered political consternation in November 2005. This was a major power failure, which lasted more than 24 hours. Moreover, an apparent shortage of emergency power units considerably increased the hinder. Politicians' immediate response was to find ways to intensify rules and regulations. Despite an annual performance of more than 99.99% security of supply (EnergieNed 2006), the minister was requested to enact a regulation prohibiting distribution companies from allowing power outages of 24 hours or more. Another proposal was to tighten the fine policy, while compensating end users who experienced an interruption. Moreover, a new operationalization of reliability emerged. Regardless of the cost, a proposal was tabled that residential areas may never be at 'the end' but should always have at least two connection points to the main network. Industries increasingly invest time and effort to shake off these regulatory reflexes in response to incidents. But they are often overruled by the concerns raised and tumultuous distrust engendered.

So, all oversight bodies evidently seize high-impact events like these to increase priority for their objectives and to be proved right in their previously expressed suspicion. This is a crucial function of oversight. In practice, however, quite some ad hoc responses structurally overshoot the emerged problem as they propose or enforce fully decoupled coping.

Pounding punctuality

Another source of overshooting is when performance figures remain disappointing despite many attempts to craft appropriate incentives. After a dramatic drop in punctuality figures in 2001, it took until 2007 for NS to regain a punctuality standard equal to that of 1999 (Figure 9.1). A former NS director recalled, “We used to perform above 90% punctuality. Now we rejoice when the percentage reaches 87%.”

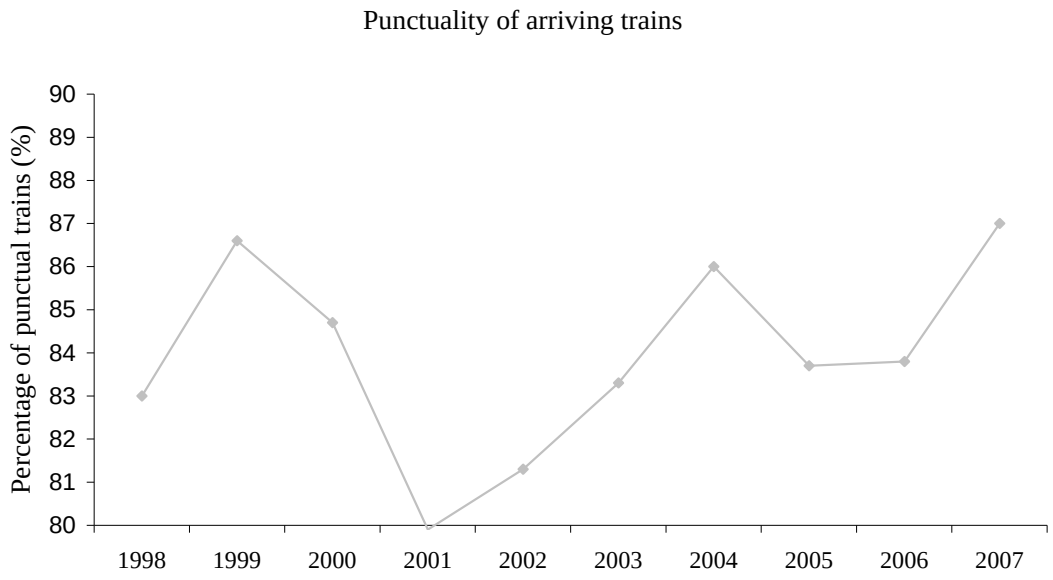

Figure 9.1: Train punctuality NS (Van Heezik and De Neve 2006, NS 2008)

Major oversight attention has addressed the punctuality of NS in the past six years. This started with a performance contract with the Ministry of Transport that links punctuality performance to sanctions ranging from warnings to severe penalties. In 2001, the dramatic drop in punctuality performance led the NS CEO to resign. In 2003, the ministry and consumer organizations coupled a tariff rise to punctuality figures in response to the disappointing performance. In 2006, the Dutch Parliament requested the minister raise the yearly

punctuality standards above the level NS considered feasible. Besides the concrete sanctions, the punctuality figures generated massive negative publicity throughout the years. The media regularly cites the Dutch rail industry as "disaster of pseudo-privatization and unbundling" (Chavannes 2008) or "the most poignant example" of failing market reform (Schöndorff 2006). For years, the media harped on NS's failure to achieve the standards set. Punctuality came to define quality and chronically confirm any dissatisfaction experienced by customers. Complaints about delayed trains almost dethroned complaining about the weather.

This swell of attention to punctuality risks triggering an overreaction at NS. A strategic-level analyst at NS calculated that if all punctuality measures were to live up to their estimated improvement, performance would theoretically add up to 140%. Since punctuality performance roughly fluctuates around 85%, this would imply that 55% of punctuality disappears in operations. A regional manager shared the conclusion that NS might be riding a dead horse in its attempts to improve punctuality.

> *"You do not want to know how much attention goes to punctuality. It is foolish to see hundreds of FTE taken up to gain 0.5% punctuality."*
> NS regional manager

Surprisingly, there is little sensitivity for, and little external interest in, how much the increase in punctuality performance actually costs. No overview of resources spent on punctuality is available or required. The network distribution company is similarly ignorant about the total resources spent on the separate values. This is because these industries are traditionally organized on the basis of primary processes and not based on realizing oversight objectives one by one.

Besides the time and costs directly invested in improving punctuality, there is no idea of what trade-offs are involved in relation to many other oversight objectives. All these efforts to improve punctuality possibly fail to recognize conflicts with many other oversight objectives, such as information services, safety, non-discriminatory access and many other values. Meanwhile, incentives for other oversight objectives may intensify in response to the more aggressive punctuality policies. In the new timetable, for example, punctuality is improved at the expense of slower trains and slack in the schedule. In response, the Dutch Parliament immediately proposed new rules setting a

maximum travel time between cities. These interventions may in turn reverse the trade-offs previously made in favor of punctuality. In effect, the different oversight policies risk 'cycling' from one objective to another instead of contributing to overall performance. In this way, oversight falls prey to the law of accumulation and leads the industry away from the socially desirable trade-off.

Interim conclusion

Oversight bodies may actually overshoot their demands when they dump their requirements without considering and without learning from side-effects. A perverse incentive is at work when oversight repeatedly dashes its own expectations, including those of customers, since this reinforces the urgency of their high ambitions. But as long as performance figures do not drop, overshooting is generally regarded a success, and oversight bodies are inclined to maintain their strategy.

Meanwhile, further overshooting continues, ultimately overtaxing the industries at a critical point. This point does not announce itself, when it induces a gradual process of decline. Early manifestations of overtaxing might appear in the many stressful dilemmas in operations (Ch. 7), as workers say they increasingly "see no way out" and are repeatedly forced to conclude "we just need to do something."

Moreover, overshooting oversight objectives may be contagious prompting other oversight bodies to harden their objectives and increasing ambitions too. When this is not considered, oversight bodies thoughtlessly go about their demands causing unnecessarily high coping pressure.

MECHANISM 3: BUREAUCRATIZING THE INDUSTRIES' COPING STRATEGIES

The network-based industries do not immediately collapse when they are overtaxed with demands. Instead, they may first shift focus, for example, to the realization of the most visible, simple and short-term interests. They might also succeed in providing their environment different assurances and performance figures, even though these are unlikely to be attained simultaneously. The dominant decoupled coping strategy tends to lead managers in this direction. 'Projectization,' for example, provides priorities on demand, while the 'disassociation' between managers and operational workers obfuscates the buildup of coping pressure in operations and managerial attention to optimizing

operational coping reduces (Ch. 8). This process may eventually turn the organization inside out, producing more paper safeguards and less service.

We recognize this pattern of bureaucratizing safeguards from the previous two chapters. As a result, public values frequently get traded off against peripheral matters, such as transparency, fair treatment of market players and image. Next, operational workers regularly met many of the performance criteria agreed with oversight bodies, but they could not match this with what they perceived as the core of their job. Instead, workers were often unable to explain or even name their main performance standards. Managers complained that they increasingly dealt with everything but optimizing operational processes. Instead, they were occupied with displaying performance information or making progress in projects to reassure the outside world.

More generally, respondents indicated that their capacity to assess local optimizations had been strongly reduced in recent years and become highly inefficient. Ultimately, the bureaucratization of safeguards might gradually push out the messy coupled coping strategies as oversight pressures rise, although it might only be thanks to the robustness of the technical system and the inert routines deeply embedded in experienced workers that the paper safeguards currently continue to rule and grow seemingly unsanctioned.

An accompanying risk is that the organization increasingly focuses on simple, decoupled interpretations of realizing public values. As long as performance figures show green lights, oversight bodies generally reassure themselves that their objectives are safeguarded and refrain from extra regulation. There are many reasons, however, to distrust these safeguards. Not every effect of coping is visible in the performance figures. Qualitative and long-term effects may remain veiled. Besides the inevitable tensions among norms and values, the industry traditionally has a large say in norm formulation and their adjustment as well. When cornered by inconsistent norms, there are many incentives and opportunities to ‘game the numbers,’ to change the indicators, to escape sanctions and to perfect the bureaucratic ideal.

Improving train punctuality, for example, remains a shallow representation of quality. Still, the trade-offs required to attain better punctuality hardly receive attention. Train cancellations, trains departing too early, skipped connections and the number of passengers affected are direct consequences of higher punctuality performance, but somehow they claim less attention. In 2004 and 2005, NS fell 1% short of the 92% norm for making train

connections. Also, more trains were cancelled than the 1.5% target allowed. Still external and internal pressure to improve punctuality remained high, encouraging NS to optimize its logistic processes instead of service to passengers.

To avoid this pitfall, customer appreciation figures were recently given more importance in the accountability system. This new indicator, however, similarly risks producing adverse outcomes. For instance, it stimulates NS to serve the majority of customers at the expense of minorities. This majority principle has its clear rationale, but emerging conflicts constantly underline the need to protect captive customers and, for example, those using less busy routes. Acceptable minimums for these minority values, for a myriad of daily conflicts, appear often not politically drawn. In the meantime, the industry continuously deals with these trade-offs, as long as there is *room* to do so.

These examples illustrate the potential perverse effects of expanding oversight, with its mono-value orientation and its focus on transparent performance figures and rule compliance: in short, the bureaucratic ideal. Strikingly, major policy documents refer to this development as the 'professionalization' of the industry (e.g. V&W 2004), although, from a coping perspective, this development may actually degrade the professional organization that currently enables industries to neutralize many inconsistencies in their oversight environment. In fact, this development might increasingly turn industries into 'machine bureaucracies,' in Mintzberg's terms, counter to the professional organizations they are, too, and need to be. A typical characteristic of machine bureaucracies is a large technocratic staff. Indeed, a large share of our selected respondents appeared to work in this domain. Contrary to the bureaucratic ideal, the professional organization is typically opaque, unaccountable and diverse, as we perceived as well.

The dramatic performance dip in 2001 in the Dutch rail industry convincingly demonstrated the brittleness of a system in which professional coping has been neglected. Unbundling abruptly frustrated traditional coping strategies in a new institutional setting with formally described tasks spread over separate control rooms. Rail performance plummeted as a result. From one day to the next, rail traffic regularly came to a complete standstill. Conflicts between controllers began to escalate into unnecessary interruptions of traffic.

Formalization of the interaction between controllers during disruptions seems to have been an effective remedy, eventually. Over seven years, performance slowly recovered. But controllers are still regularly deprived of

the feeling of being in control. To speed the recovery, NS and ProRail designed a new, more robust timetable that proved less vulnerable to delays. Although the results of these structural measures seem significant in terms of performance, they systematically side step controllers' capacity to cope with disturbances. Meanwhile, the way controllers were previously able to collectively deal with small disruptions before 2001 remains ill-understood, underappreciated and unrestored.

Thus, accumulating oversight pressures incite the industries to improve performance in simple ways. The well-intended mono-value strategies of oversight are likely to evoke 'bureaucratic' and defensive coping, neglecting everything that industries cannot be held accountable for. The failure of these mono-value interventions may manifest in domains other than measurable performance. Performance figures may rise, but perhaps only temporarily and at the expense of operational resilience to cope, for example.

If this is true, the industries are currently heading for a point of regret, when they discover they have neglected for too long – and perhaps lost – their ability to couple many competing values in operations. Coupled coping strategies may erode and disappear, perversely confirming the need for more oversight and more regulatory interventions. The industries' ability to point out and communicate inconsistencies between multiple oversight objectives might gradually erode away as well, weakening their countervailing power to neutralize tensions between many competing oversight objectives. Meanwhile, the industries are even constantly incited by their oversight environment to find much more directly effective ways to improve performance instead of sustaining or restoring this coping ability. So, under the influence of oversight, professional coping strategies may gradually pass into disuse, eventually leaving behind a brittle, if not unworkable, system.

9.3 CONCLUSION

This chapter questioned the functioning of the currently fragmented oversight system with regard to the trade-offs between public values it might entail. We encountered no systematic coordination at the oversight level. The pattern of mono-value responses we found within the industries repeats itself at the oversight level. Since trade-offs, thus, remain largely unknown and unconsidered, it is doubtful whether the current oversight system can in fact set conditions for optimal trade-offs to be made.

Oversight bodies generally entrust trade-offs to industry managers. This corresponds to the initial aim of the institutional reforms, to improve performance by offering more operational freedom. This may prevent regulatory capture and improve the efficiency of oversight. In practice, however, many conditions and interventions to safeguard public values pile up, considerably constraining operational freedom. Simultaneously, oversight has distanced itself from the possibly interacting effects of multiple safeguards in operations. This might bring out the worst of both the industry and the intended oversight.

The common assumption underlying the oversight system – that key conflicts will rise to find their trade-off at the political level – appears weakly founded. As coping pressures rise, the current oversight system undeliberately pushes value conflicts further out of sight, from the industry as well as itself (Chapters 5, 6, 7 and 8). What usually is interpreted as strategic reticence of the industry, actually seems a lack of interest at the side of oversight to breach this reticence and to think along with how to organize for trade-offs. Nonetheless, these trade-offs are key to the concerns oversight bodies harbor.

We further identified adverse mechanisms induced by the lack of oversight attention to trade-offs. Many mono-value interventions trigger emergent trade-offs. Subsequently, the lack of feedback on trade-offs prompts oversight to structurally overshoot some of its objectives. Continuous overshooting may turn the industries inside out. The industries become specialists in answering to separate safeguards without subjecting them to the test of mutual consistency. Meanwhile, their capacity to neutralize inconsistencies between oversight objectives and the ability to establish local optimums are gradually sold out. In other words, oversight may actually incite industries to unlearn how to cope.

All in all, the status quo of oversight might still be a sensible middle course between these adverse mechanisms and the other extreme of micromanaging conflicts among public values, sidelining the industry's expertise. Internalizing coupled coping strategies in the system thinking of oversight bodies has serious drawbacks. Oversight bodies may currently carry out a workable mix of mainly decoupled interventions with some responsiveness to conflicts. Yet, this is a far from comfortable position, since the status quo requires industries to selectively ignore and neutralize these oversight interventions in discretion on a continuous basis.

The performance figures alone currently do not directly show that competing oversight objectives are undermining industry performance. But this comfortable position changes when we reverse the burden of proof. It might turn out to be irresponsible and highly inefficient for oversight bodies to systematically parry accountability and even commitment to the trade-offs and the extra costs they induce with their dominantly mono-value interference.

The main risk of decoupled oversight is the temptation to take it too easily. The currently fragmented oversight system allows separate oversight bodies to ‘dump’ their requirements, fueling a sector-wide pattern of decoupling, without concern for the consequences. It is a comfortable position to operationalize public values without having to think about the intricate operational interdependencies between values. But it is a major source of instability and capricious trade-off effects.

NOTE ON CHAPTER 9

[i] We did an electronic search on parliamentary questions for 'NS' scanning www.overheid.nl, consulted in May 2008.

Chapter 10 Conclusions

Since the 1990s, the Dutch State has withdrawn from the actual provision of utility services. In the process, it established multiple oversight bodies to watch over the liberalized utility industries. A new oversight system intends to counterbalance any tendency for liberalization to compromise public values. Together, however, this increased oversight and liberalization are part of a paradoxical development. The unbundled utility industries were granted more operational freedom, but they were not expected to strive towards public values of their own accord. This triggered growth of oversight, re-constraining the granted operational freedom again.

This study questioned how the infrastructure companies deal with multiple, potentially competing, public values at the same time and, what is more, within a heavily regulated environment. We learned that the infrastructure companies are able to absorb many tensions between the many objectives of oversight bodies. The companies find ways to neutralize their adverse effects. Surprisingly, however, they do this without paying much attention to the interacting effects of multiple oversight objectives.

These conclusions are upheld by our findings in three Dutch network-based organizations, namely train operating company NS, rail infrastructure manager ProRail and electricity distribution company ENEXIS. These findings regarding liberalization, institutional fragmentation and increased oversight may further prove relevant to a wider family of utility sectors in Western, urbanized societies and possibly to non-infrastructural sectors as well.

This chapter recaps our search for how network-based organizations cope with multiple competing public values. Theoretical implications are drawn concerning the effectiveness of oversight. Subsequently, Chapter 11 further elaborates on the practical implications of our findings.

10.1 UNRECOGNIZED VALUE CONFLICTS

So, our research approach was to transect the network-based organizations tracing where public values may compete, how individuals cope and what trade-offs result. This exploration of trade-offs started with oversight

objectives. We tracked these objectives within the organizations to see how they operationalized and eventually materialized in the core operational process, or not. In each organization, chains of interviews and observation shifts covered processes related to planning, operations and management.

Though theory led us to expect constant trade-offs among public values (Chapter 2), it proved difficult to identify conflicts in the data, at first. After oversight objectives 'entered' an organization, they were generally subdivided over many specialized managers and their staff. These respondents had structural troubles answering direct questions about trade-offs. Later, many middle managers also denied the presence of value conflicts. Various values were considered non-fungible. Many of their protocols ruled out conflicts. Performance management systems did not visualize conflicts either. Many respondents reinterpreted our questions, describing how they prevented conflicts or kept in line with agreements and norms they daily pursued with minor complications. So, it appeared hard to find competing public values at all within the industries.

Eventually, we discovered abundant conflicts by asking more general questions about the daily occupations of our respondents and by comparing different perceptions between many interviews across the organizations and our observations on site. Trade-offs appeared all over the place, but few respondents recognized them as such. Public values compete at many organizational sites simultaneously and with an unavoidable impact on value realization that could not be compensated for elsewhere. Surprisingly many value conflicts drew little attention within the network-based organizations.

10.2 COPING IN THREE ORGANIZATIONAL PROCESSES

After finding these value conflicts, the empirical puzzle was to discover how the organizations manage the trade-offs that inevitably resulted. Therefore, we followed the operationalization of oversight objectives, as they trickled down the organizations. Our method appeared to mark a fixed route through the organizations, from the planning process, to the operational process and, last, to the management process in the hierarchical line (Figure 10.1). These three organizational processes form a sequence of three distinct coping practices.

Oversight objectives formally 'enter' the organizations at the board level, but planners and strategic managers in the technostructure explained us how they directly negotiate with stakeholders and set to work with the

negotiated agreements. As a result, planners and strategic managers link external requirements to internal specifications, rules, norms and procedures in advance. More incidentally, support staff and the board are involved in the operationalization of oversight objectives as well. Operational workers subsequently set to work in real time with plans and instructions geared towards multiple public values. Afterwards, middle managers and their staff daily oversee these operational processes and intervene when necessary. More structural interventions are usually passed on to the technostructure again where dedicated staff departments and project managers further deal with a particular problem. In each of these organizational processes, we met the same public values but cloaked in different guises and circumstances.

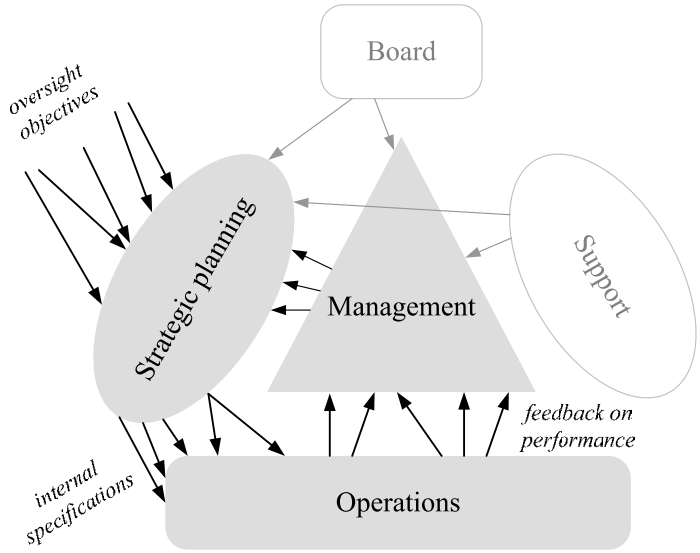

Figure 10.1: Tracking oversight objectives through three organizational processes

COPING IN THE PLANNING PROCESS

Our first respondents, surveying many oversight objectives, immediately associated our research interest in trade-offs with their central planning tools. They expected trade-offs to be arranged in planning systems on a high level overseen by strategic managers, planners and their staff. Indeed, planning systems anticipate the major trade-offs in budget and account for dynamic priorities over time. Yearly strategic planning decisions either roughly or systematically distribute the available resources over various activities, incrementally adjusting the status quo, foreseeing future needs and being

continuously responsive to most urgent demands. These strategic decisions give rise to a yearly list of standards, norms and priorities.

At the same time, multiple public values require more detailed and continuous planning and protocols besides and complementary to the yearly strategic decisions. We met relatively many respondents involved in planning and in specifying for single values. Few of these respondents dealt explicitly with trade-offs between values. Many managers dedicated their time to implement single oversight objectives in relative isolation of other values. Many conflicts were thought to be eliminated on paper, but not definitively. Many other conflicts remained unrecognized and unaddressed. While dedicated and detailed specifications were constantly generated geared towards safeguarding individual values, many conflicts structurally shift to the operational level.

COPING IN THE OPERATIONAL PROCESS

Whereas many managers had the relatively comfortable position of ignoring many conflicts, discord inevitably materialized in operational processes. Operational workers regularly encounter acute dilemmas with diametrically opposed risks. Choices suddenly emerge to *either* turn off a gas tap in a room full of gas *or* to evacuate leaving the gas tap on, to *either* leave an overcrowded platform *or* to run an overcrowded train, to *either* prohibit a train leaking a hazardous load from proceeding *or* to guide that train away from a station full of people. Accordingly, speaking with operational workers about their daily work proved a richer and more direct data source of coping behavior in comparison to interviewing managers.

Many other conflicts appear to emerge, as multiple tasks and instructions suddenly must be performed simultaneously and cause acute time pressure and other impracticalities. The exact impossibilities and constraints in operations are rather unpredictable, in timing as well as in criticality. They depend on multiple variables and personal interpretations of daily situations. Moreover, new tasks and instructions handed down through the planning processes of the organization constantly add to the workload, but planners generally do not foresee or even consider when and how time pressures will force operational workers to make trade-offs. Even operational workers cannot systemize the conflicts they face or articulate why the conflicting pressures are unworkable. Instead, workers often indicate, quite vaguely, that the unspecified but

obligatory ‘continuity of operations’ precludes any alternative and regularly forces them into painful trade-offs.

Thus, many value conflicts constantly appear and reappear in the daily practice of operational workers, but they have troubles addressing these conflicts explicitly, particularly when coping pressures rise. Balancing conflicting values tends to put workers in a difficult position, as multiple demands limit their solution space and regularly force them to deviate from instructions. Specialization and standardization in operations, though aimed to reduce the cross-pressures workers must deal with, often fail to solve the value conflicts that nonetheless appear. In effect, specialization and standardization ‘harden’ instructions on single values, discouraging operational workers to address or even recognize many conflicts. For example, emphasizing safety encourages traffic controllers and train drivers to focus on their own specialized task, as instructed by their own employer. Consequently, they are encouraged to ignore those safety issues that depend on collaboration strategies in the traffic control process where responsibilities are less clearly divided.

Instructions to trade-off ‘safety’ as a public value are rare. Most respondents named safety as the ‘absolute’ priority in their daily work. Many others did not even mention safety, taking it for granted. In operations, however, constant conflicts and optimizations arise in relation to safety. Operational workers make these trade-offs routinely but generally without managerial guidance, ironically despite the many instructions issued with regard to safety. At the same time, achievement of safety generally remains rather invisible to these workers as well as their managers. Safety typically becomes visible only when its opposite proves the case – when an accident or incident occurs. The absence of accidents does not mean that safety is guaranteed. Therefore, it is fundamentally difficult for operational workers to judge the effectiveness of their coping in discretion.

Likewise, the reliability of an electricity system becomes visible only when the lights go out. Daily contributions made to ensuring reliable *system* performance are typically an abstraction to coping operational workers. Within the train operating company, punctual arrival and the ‘three minute norm’ receive enormous emphasis in the accountability figures, the media and the public debates. In the operational process, however, train staff face no norms nor direct sanctions when they want to delay a train departure. Train staff neither see the impact of their decisions for punctuality on a system level. We found that particularly reliability and safety are constantly involved in a myriad

of ‘invisible’ trade-offs, for which no instructions or protocols have been issued. On the contrary, most instructions and protocols aim only to prevent these trade-offs from happening, disregarding their inevitability.

In effect, a loose connection emerges between operational coping practices and the planned strategic preferences. Consequently, optimizing daily value conflicts often lands operational workers in dilemmas. This requires workers to have a high tolerance for stress, sacrifices and uncertainty. The overwhelming amounts of instructions they receive force them to either ignore conflicts or violate instructions on a routine basis. The hard question in these cases is what would be a ‘professional’ response that managers can agree with. Surprisingly many workers risk their neck to address unplanned value conflicts without guidance or feedback from the rest of the organization on their improvised coping responses. Still, the necessities to cope generate diverse responses and unpredictable outcomes, because some workers may selectively comply with instructions while others find their own deviant routines. Both responses have troubles to optimize a conflict according to the strategic preferences.

COPING IN THE MANAGEMENT PROCESS

The aggregate effects of operational trade-offs are managed by means of checks-and-balances afterwards. Middle managers daily monitor performance and correct for deviations from norms or rules where necessary. This corrective strategy, however, appears insensitive to many value conflicts that cause these deviations.

After the fact, managers’ accountability systems seldom enable them to detect the cause of unplanned trade-offs. Performance monitoring systems produce aggregate and unspecific information, sanitized from conflicts and often geared towards externally prescribed norms and standards. They hardly enable managers to understand how operational workers cope in daily practice. Again, the risk is that managers structurally ignore or remain blind to value conflicts.

Through their own experience or face-to-face feedback, managers learn a great deal more about the situations operational workers find themselves in, but still the actual conflicts refuse to be addressed at the managerial level. Many operational workers reported a lack of any feedback from their direct managers on the routinely deviant trade-offs that the workers see as necessary to do their job. Even when managers become aware of operational coping, they

are rather reluctant to prescribe responses to conflicts. They often consider that unnecessary or undesirable, since prescribing trade-offs generally formalizes coping practices and reduces flexibility and the use of situational intelligence. In the end, managers, thus, leave the challenge to cope at the operational level, more or less deliberately.

In sum, we first looked into the planning process and found that many conflicts are not foreseeable. Many of the intricate interdependencies among public values only become visible in real-time operations, but operational workers experience major difficulties in addressing these conflicts. Afterwards, middle managers generally intervene for single-value problems and appear unable to see and support operational coping responses. So, considerable value conflicts constantly emerge in operations, where no one formally addresses them.

10.3 CONCEPTUALIZING COPING STRATEGIES

During the analysis, we applied a two-dimensional framework (Chapter 2) to systematically describe the variety of coping strategies in these three organizational processes. One dimension describes whether the coping response ‘couples’ or ‘decouples’ the conflicting values in a particular situation. A coupled response balances a set of values within a conflict, whereas decoupling isolates single values from conflicts. The second dimension distinguishes ‘deliberate’ from ‘emergent,’ or spontaneous, coping.

Applying this framework further advanced our understanding of organizational behavior in the face of value conflicts, but it also gave rise to new questions on how to explain its current effectiveness in terms of performance. The conceptualization of coping strategies is summarized in Tables 10.1, 10.2 and 10.3 for the planning, the operational and the management process across the cases. Concise descriptions of coping types are accompanied with illustrative quotes of those who practice them.

Table 10.1: Coping in the planning process (Chapter 6)

Coping strategies	Quotes by managers and planners
Deliberate coupling. Central strategic planning tools address multiple values simultaneously, distributing a main resource based on seemingly uncontested criteria, aiming for a streamlined organization without conflicts.	*"We steer on the basis of output."* *"We are able to compare our main objectives like apples and oranges."* *"We produce a conflict free planning."*
Emergent decoupling. The operationalization of public values further crystallizes in norms, procedures and tasks from the perspective of single values. Many conflicts remain unaddressed and displace into the operational process.	*"Safety is priority zero"* *"Technical specifications lay down the quality standards."* *"Safety is fixed in procedures."* *"Our target is 5% efficiency… Quality is not my concern."*

Table 10.2: Coping in the operational process (Chapter 7)

Coping strategies	Quotes by operational workers
Deliberate decoupling. Standardized tasks assign operational workers to realize values one by one, even in the face of conflict. The optimization is presumed to be dealt with in the planning process.	*"Everybody sticks to their own job"* *"If no solution is available, the delay is unavoidable."*
Emergent decoupling. As operational workers routinely use procedures and decision rules, they tend to overlook value conflicts. They do not recognize many compromises induced, as they assume their daily routine to be 'trade-off proof.'	*"We do not face difficult decisions. There are standard procedures."* *"Plan is plan"* *"All we do is isolate delayed trains."*

Deliberate coupling. Still, operational workers regularly encounter value conflicts in their daily work but without prescribed instructions how to respond. Many operational workers apply their personal heuristics. Most of these responses tend not to be very concrete or fixed though. Because of their high diversity, it is hard to account for these responses or to know how they add up on a system level.	*"We just use common sense."* *"If it fits, it is fine."* *"Safety is a gray area."* *"There are many reasons not to depart on time… Looking at the signals tells me if I can make a train connection with an extra minute or two… when it is extra cold I wait some more."*
Emergent coupling. At times, when work pressures suddenly peak, coupled responses often become too demanding. Attempts to couple in these overconstrained circumstances, then, often end up in forced choices with unpredictable outcomes.	*"We fly by the seat of our pants"* *"Doing something is better than doing nothing."* *"Sometimes, there is just no way out anymore."* *"Priorities emerge."*

Table 10.3: Coping in the management process (Chapter 8)

Coping strategies	Quotes by middle managers and staff
Deliberate decoupling. Managers respond with checks-and-balances to prevent new incidents and to counteract concrete performance dips that emerge from operational practices, but often without identifying the underlying conflict. Extra priority for repressed values is organized in dedicated employees and targeted projects.	*"We assigned a new department to be responsible for network reliability"* *"Starting working groups has become an automatism."* *"We pay more attention to projects than to the operational processes themselves."*
Deliberate coupling. If middle managers do recognize value conflicts, balancing both sides of the trade-off in real-time often appears too constraining to do. Therefore, most managers entrust the challenge of coupling to the operational workers and stimulate their creativity and alertness in a more general way.	*"There are no rules for conflicts."* *"Operational workers need to stand on their own two feet."* *"In case of disturbances, scenarios specify: if this is at hand, do that."* *"We see trade-offs that conductors do not see and ask them why and how to improve."*

10.4 DECOUPLING AS THE PREDOMINANT COPING STRATEGY

Oversight bodies generally consider it the expertise of the industries to eventually deal with multiple public values and their operational trade-offs in a coupled way. We conclude, however, that this supposed 'expertise' of the industry largely falls apart in many mono-value responses. Many value conflicts occur unrecognized. So, the industries are not making multiple values commensurate in order to optimize the consequences of these value conflicts. Instead, the industries structurally display rather defensive and reactive strategies, postponing conflicts and pushing them in operations.

Decoupled strategies make out a relatively large share of the coping practices as summarized in the Tables 10.1, 10.2 and 10.3. Many coping responses appear to be based on single values without a systematic balancing of the values in conflict. Multi-value responses are not evident in how the organization deals with conflicts. Moreover, the coupled coping strategies, much-attempted as well, often remain problematic and limited in its potential. This may explain why respondents structurally found our explicit questions about daily trade-offs difficult to answer.

The prominent mono-value interventions give rise to a paradoxical understanding of organizational behavior in the face of conflict. Organizations seem to balance competing public values for a considerable part without actively optimizing trade-offs. This deviates from the implicit norm that 'deliberate coupling' is the most efficient way to create maximum outcome. Decoupled coping responses even resemble the classical failure pattern of suboptimization (Dörner 1996). Decoupling leaves structural inconsistencies unaddressed and eventually triggers capricious priorities in operations.

Yet, this predominance of decoupling does not seem to disable the industries from being relatively successful in achieving and improving for multiple public values simultaneously (Chapter 8). Whereas just decoupling one value would probably induce a great many undesirable trade-offs, a balanced system seems to emerge when decoupling multiple values. Together, these problematic decoupled practices appear functional on an organizational level, at least in terms of aggregated performance figures. Various aspects of public values may not show in these figures, though.

We see two broad explanations for a prominent and effective use of decoupled coping. First, decoupling indeed has many advantages as a coping

strategy. Second, decoupling seems to be counterbalanced with a significant share of deviant coping strategies neutralizing the disadvantages of decoupling.

JANUS-FACED DECOUPLING

Systematically decoupling competing public values seems advantageous for the utility industries. Decoupled coping is institutionalized in many specialized managers dedicated to constant checks-and-balances for repressed values. Coupling competing public values tends to be avoided as it either gives rise to much ambiguity or to micromanagement requiring tremendous amounts of information and precision. In effect, it would produce laborious procedures on how to cope and possibly mobilize much resistance against the optimization of many trade-offs in the contingencies of operations. Prioritizing public values by means of decoupled interventions is much more flexible. It facilitates addition or temporary adjustment of priorities anytime. Managers can respond to ad hoc problems with extra measures, projects and new procedures without micromanaging operations. The convenience of these decoupled practices is that priorities can be raised for conflicting values at the same time.

Decoupling as a prominent strategy has drawbacks. Mono-value interventions tend to ignore the conflicts that caused them as well as the conflicts they might cause. Over time, these unrecognized value conflicts may give rise to inefficient 'cycling' among interventions without actual progress, as conflicts keep causing unplanned trade-offs in operations triggering new interventions again and again. These cycling effects, however, hardly show in performance figures. In fact, the transaction costs of cycling might be taken for granted when most interventions appear successful from a mono-value perspective. Still, this success is one-sided and temporary when values constantly gain at the expense of other values without optimizing conflicts in operations.

Decoupling provides its own checks-and-balances for most of these adverse effects. Interventions generally raise the priority given to the most vulnerable values and urgent risks, initiating new instructions and projects to disarm conflicts. In our findings, however, critical values appear vulnerable and structurally insensitive to these decoupled checks-and-balances. Although managers and organizations constantly develop SMART indicators to capture these vulnerable values in performance standards, such *ex ante* agreements do not necessarily match with hard instructions for realizing values in real-time. Even though vulnerable values might constantly profit from adequate

instructions, critical aspects remain uninstructed and invisible when operational workers deal with them in the diverse circumstances of daily conflict situations.

Particularly safety and reliability appear difficult to attain with a completely decoupled stance towards daily conflicts (Chapter 7). More than other values, reliability and safety resist to be fully realized by means of decoupled coping responses. Though decoupled checks-and-balances are constantly organized to address these vulnerable values, this swell of decoupled instructions, projects and measures is what, in fact, makes these values vulnerable. Counteracting the vulnerability of values with more and more decoupled checks-and-balances irregardless of the exact conflicts risks increasing the pressures to cope. The organizations generally find ways to vent these cross-pressures by means of decoupling, further reducing attention to what is not precisely instructed in decoupled ways and not directly visible as conflicts. In sum, the advantages of decoupling may explain why it is a much practiced coping strategy, but decoupling has evident drawbacks as well.

OPERATIONAL COPING PRACTICES AS A COUNTERVAILING POWER

Not all daily conflicts can be countered with decoupled checks-and-balances. Particularly in the context of many contingencies and interdependencies between tasks, critical aspects of public values are not conductive to conflict-free instructions in decoupled tasks. Strictly enforcing decoupled interventions may bring mindless value disposal or even complete interruption of operational processes. A clear example of such effects was the situation after unbundling rail operations. A manager at the Traffic Control department of ProRail described this new institutional situation as “a muscle that first has been cut and then contracts.” Unbundling removed many coupled coping strategies across controllers. This appeared disastrous for overall performance.

In the operational processes, we found many coupled coping strategies structurally deviating from decoupled instructions. In doing so, these coupled coping strategies could address many unplanned conflicts and seize many opportunities for local optimization. Unlike decoupling, this coupled response requires a process of seeking and interpreting where values compete and what preferences apply. This improvised operational sensibility is spontaneously present here and there, but rather unstructured and unsupported. Yet, these deviant coping strategies seem critical for the multitude of conflicts and inconsistencies not to paralyze operations and for the organizations not to act blind towards the relative importance of public values in concrete conflicts.

10.5 THEORETICAL IMPLICATIONS FOR EFFECTIVE OVERSIGHT

Our understanding of the coping network-based organizations seems incompatible with common theoretical premises, held by most oversight bodies, on how oversight works. One such premise is that operational organizations are experts on managing trade-offs. This expertise is said to give rise to an 'information asymmetry' between the organization and oversight. This asymmetry supposedly limits the effectiveness of oversight. Another premise is that operational organizations have and use their discretion to shape trade-offs in accordance with their own strategic preferences. Oversight systems generally anticipate the required preferences and, accordingly, establish incentives and checks-and-balances for the industry to achieve public values. But we found that the operational organizations structurally do not recognize conflicts. Instead, they balance competing values to a considerable extent implicitly. Many trade-offs are not actively managed but rather emerge from organizational processes. These findings raise the question how oversight incentives actually could and should protect their objectives against these trade-offs.

TRADE-OFFS ARE NOT DELIBERATELY HIDDEN

After liberalization, a pervasive public suspicion emerged as if utility industries meticulously calculated how to minimize costs and settle value conflicts in discretion according to their own private preferences. The State withdrew itself from operational details, although trade-offs concerning multiple public values constantly occur. This State withdrawal was said to create an information disadvantage. Accordingly, principal-agent theory prescribes government to overcome this obstacle in order to protect public values. So, many oversight bodies were established to stipulate many rules, norms and conditions to ensure that network-based organizations are stimulated to work towards public values. When the organizations fail to comply with these rules and norms, oversight bodies generally stand firm and respond with more incentives and sanctions if necessary.

Though this tit-for-tat oversight policy seems straightforward, it fails to recognize how network-based organizations deal with many conflicting public values simultaneously. In the face of constant value conflicts, there appears no obvious information asymmetry between the organization and its oversight bodies. Indeed, the network-based organizations are black boxes for their

oversight environment, but, with respect to the management of many daily trade-offs, we found the organizations are black boxes to themselves as well. So the organizations are not necessarily being reticent about communicating how their daily trade-offs affect oversight objectives.

Principal-agent theory suggests that the network-based organizations hide their trade-offs. Hiding trade-offs is presumed to be in the strategic interest of these organizations, enabling them to evade costs and shirk oversight interventions. We found, however, that many daily trade-offs were not 'hidden' deliberately. Rather, the organizations appeared structurally unable to recognize their daily trade-offs and to account for them, even after they occurred.

TRADE-OFFS ARE NOT OPTIMIZED

Another major premise of principal-agent theory is that the network-based organizations are ultimately arranging trade-offs in accordance with their own ideas and strategic preferences. This premise portrays the organizations, more or less, as willful mechanical instruments of managers who have authority over the trade-offs occurring. We found, however, that many trade-offs affecting oversight objectives do not necessarily follow the preferences of the network-based organizations. We observed significant coping practices that were not goal-oriented at all.

Our theoretical discussion (Chapter 2) introduced literature on multiple principals suggesting that noncompliant agents do not necessarily 'shirk' for private reasons. They can also be forced into trade-offs between the objectives of competing principals. Our study followed on this multiple principals perspective and further explored how these trade-offs actually take place. This led to a remarkable contrast with previous studies on the 'multiple principals problem.'

Previous studies particularly emphasized the extra possibilities for strategic behavior these forced trade-offs bring for the agent. Waterman and Meier (1998) hypothesize that cross-pressures turn agents into political institutions. Coen (2005) argues that the thin spreading of regulatory tasks over a multiplicity of institutions stimulates agents to hold back more information and play principals off against each other. Miller (2005) makes a similar statement, discussing the work of Moe, that "[I]n the context of warring principals, the ability of bureaucratic agents to use information asymmetries to their own advantage is enhanced" (p. 211). Our findings on the shared

information deficit and the emergent coping strategies, however, point to quite a different understanding of this so called multiple principals problem.

We found that the network-based organizations do not structurally exploit daily trade-offs between public values. In fact, the organizations suppress and displace their multiple principals problem, and do so structurally without recognizing it at all. The presupposed ability of these organizations to guide trade-offs in fact appears significantly limited. So, even when the priorities of an agent would align with its principals, which many oversight bodies portray as their ideal situation to be in, actual outcomes may keep showing deviant priorities.

The effectiveness of the current oversight strategy based on the principal-agent framework appears fundamentally problematic. The pursuit to drive out shirking behavior might be relevant for many forms of strategic behavior but not for the coping behavior we studied. The agent may act strategically, for example when determining performance indicators, scheduling or postponing investments, budgeting in creative ways and seizing many other strategic opportunities. But with respect to daily trade-offs in the provision of utility services, systematic practice of the current oversight philosophy to enforce rule and norm compliance is inadequate and bound to increase undeliberate outcomes.

Chapter 11 Implications

The delivery of utility services should comply with many oversight policies simultaneously. These policies expect network-based organizations to guarantee many public values from safety, high reliability, sufficient quality, efficiency, affordability, solidarity up to sustainability. Within these organizations, we empirically studied what happens when achieving one public value hinders another.

Recent institutional changes raised broad concerns about how public values eventually end up in trade-offs within utility industries. Therefore, liberalization and unbundling has been counterbalanced with new oversight systems. In these new settings, we studied the industries' daily strategies to deal with *competing* public values.

Our findings do not confirm that public values are immediately at risk in the new institutional setting, but to sustain high performance levels on the long run, the current functioning of the sector might need some reconsideration. We encountered many daily inconsistencies and incompatibilities between oversight objectives that are left to be resolved at the front lines of operational processes in these utility industries. Workers daily improvise trade-offs in operations, but these competing values remain structurally unmanaged. Instead of balancing value conflicts strategically, a growing system of checks-and-balances continuously intervenes in defense of repressed values. This emerged system does not appear most intelligent or optimal, but the good news is that it appears robust in terms of performance. The bad news is that this system is fundamentally unstable, as we will demonstrate. The system may currently buffer the adverse effects of increasingly inconsistent oversight, but, as coping pressures rise unsanctioned, this largely tacit ability to cope tends to bureaucratize and undermines itself on the long term.

In this final chapter, we transect the utility sectors once more to discuss the effects of rising coping pressures on each level in the sector. Afterwards, we unfold how the sum of problematic coping responses appears functional at a system level. Our concluding argument is that the challenge of accommodating competing public values cannot be relegated to the utility industries only. Rather, competing public values form a sector-wide dilemma.

11.1 THE PROBLEM OF RISING COPING PRESSURES

As utility industries properly maximize performance on many objectives separately, seemingly without a need to address the increasing cross-pressures between them, the pressure to cope gradually rises. These growing tensions are not necessarily problematic. They are the reverse side of greater efficiency. Efficiency requires work pressure, managers typically think. The more cross-pressures, the more opportunities there are to optimize and the more incentives to find win-win situations or to utilize scarce resources in more efficient ways.

Yet, rising pressures also cause adverse effects. At each level in the sector, we find a tendency to ritualize competing safeguards for various values. We recognize this bureaucratizing process at all levels, at the operational and the managerial levels, within dedicated oversight bodies and at the highest political level. This rather unintelligent process seems to function as a 'valve' to vent pressures when they get too high, but at the risk of undeliberate value disposal on the short term and losing the capacity to cope on the long term.

THE OPERATIONAL LEVEL

Most coping pressures are de facto decentralized to the operational processes triggering increasingly capricious priorities as the pressures accumulate. Each day, operational workers face many optimization dilemmas and approach them with rather implicit heuristics and unstructured strategies. As coping pressures rise, however, shortages of time or solution space increasingly emerge and force workers to leave conflicts unconsidered and opportunities unutilized. When high coping pressure is sustained with a stream of one-sided priorities and single-value protocols, workers gradually unlearn their implicit and diverse coping routines and develop more 'bureaucratic' behavior instead. This erosion of professional coping routines threatens the industry's ability to prioritize public values in the face of increasing conflicts.

So workers adapt their daily routines to the amount of unplanned cross-pressure they encounter. We found many workers escaping these conflicts by surrendering to their formal task. A bureaucratic attitude offers workers accountable and standardized coping responses, but it refrains them from being flexible and using their situational intelligence. Although they experience their work to be increasingly suboptimal, this more bureaucratic worker typically prefers not to violate any rules for fear of sanctions. Another effect is that

workers increasingly display a catch-as-catch-can attitude. Ever more specified job descriptions offer many possibilities to shift sanctions to others and fewer incentives to attune one's own contributions to the tasks of other workers. In turn, other workers react to this decreasing collegiality again, for instance by copying their behavior or, instead, by purposefully inducing adverse consequences in real time, forcing their colleagues to cooperate.

The threat at the operational level is that the silent decentralization of more and more trade-offs breeds increasingly bureaucratic coping routines and erodes professional coping skills. Faced with abundant unplanned conflict, operational workers gradually adopt a narrower task perception that is more feasible but less optimum oriented. This 'valve' facilitates workers regaining control over the conflict situations they are in, but at the expense of their sensitivity to the wider context of the conflict. The resulting trade-offs become increasingly undeliberate as cross-pressures rise, and the organization gradually loses its ability to prioritize public values at the operational level.

THE MANAGEMENT LEVEL

When executives and managers face rising coping pressures, they generally divide them into separate problems of repressed values. In response, new responsibilities for solving these problems are accommodated in memos, projects and, if necessary, newly established dedicated departments. The problem is that there is no evident limit to the amount of coping pressures managers can push back into operations. In effect, the system of checks-and-balances constantly expands. This specialization of attention currently enables the industry to accommodate high pressures to cope. Notwithstanding the progress these industries are currently making in this way, the troublesome cross-pressures in operations are structurally avoided and the collective blind spot to value conflicts remains in place.

So, in response to rising coping pressures, dedicated managerial interventions generally invent protocols to protect values against conflicts, reducing the number of conflicts the organization must deal with. To the dismay of many operational workers, however, this managerial process progressively reduces them to standardized tasks requiring little imagination and creativity. At the same time, the more professional operational strategies to address conflicts remain structurally unrecognized and underappreciated at the management level. The managerial process tries to make these improvised coping responses redundant. While extra specifications constantly protect

repressed values against conflicts, coping pressures may, in fact, further increase.

Thus, when rising coping pressure reaches the management level, checks-and-balances do their work by adding new pressures on the repressed values. The risk ultimately is that the industry loses itself in constantly restoring the balance, repairing what previous interventions damaged and damaging what previous interventions repaired. Meanwhile, all these dedicated interventions do not effectively reduce cross-pressures. Instead, they systematically push more and more conflicts back to the operational level, burdening and discouraging the professional coping practices there.

THE LEVEL OF DEDICATED OVERSIGHT BODIES

Rising coping pressures increasingly affect oversight objectives. Because oversight bodies do not occupy themselves with the daily, detailed trade-offs, the way by which the oversight level 'vents' coping pressures remains ill understood. Dealing with coping pressures is essentially neither their legal task nor their area of expertise. In the meanwhile, however, oversight bodies strictly prohibit their own objectives from being traded off against something else.

At times, oversight bodies are flexible in response to high coping pressures. As these pressures are structurally skewed towards certain values in operations, some oversight bodies eventually need to adjust their standards to the new reality. The rationale for being pliable to performance deviations usually is that oversight bodies cannot change a *fait accompli* and they otherwise lack the technical know-how to say how things could have been different. Many standards are not set in stone but merely based on historical performance trends of what seems possible, plus the ambition of constant improvements.

A more common response, though, is to relentlessly enforce compliance after rule and norm deviations have been identified. Oversight, then, rises above coping pressures by pushing its objectives through. Conveniently, the industries are focused on single objectives too, and they structurally fail to provide feedback on the necessary trade-offs. Reacting to coping pressures, again, comes down to adding new pressures, but at the risk of shifting the burden elsewhere. Indeed, numerous examples started with seemingly innocent external requirements for Value A, instigating operational workers to revise their coping strategies. After a while, managers discerned the need to strengthen a procedure for Value B. Much later, it came to light that Value A

and Value B were flourishing at the expense of Value C. Another oversight body then came into the picture and intensified its enforcement of compliance for Value C and so on. So, at the fragmented oversight level with its multiple objectives and its distance to operations, coping pressure is bound to shift elsewhere and oversight falls prey to unproductive growth and cycling with increasing frequency.

Relentless oversight serves a critical function for the industry. When managers start tolerating norm deviance, surrendering to the detrimental status quo, independent oversight bodies can afford to remain straight, disciplining managers to act likewise. It stands out, however, that the mandate for such responses requires coordinated restrictions. Formally, most dedicated oversight bodies seem to have neither a responsibility nor a strategy to harmonize with the many other oversight objectives. Instead, oversight pushes conflicts back into the industries until these conflicts eventually lead to unacceptable norm deviations or major incidents. Then, conflicts are immediately passed up to the political level.

THE POLITICAL LEVEL

Ministers and parliament serve as the ultimate authority to correct for adverse outcomes caused by rising coping pressures. When coping practices give rise to a large-scale calamity, questions of liability and how to react immediately shoot to this highest level.

A political dilemma, then, arises to meet social unrest and concerns *while* doing justice to the actual situation. As described, the status quo of coping strategies constantly involves rule and norm deviations, but in hindsight, rule compliance could often have prevented calamities. Thus, every time operational coping responses give rise to these clearly undesirable outcomes, there seems no reasonable option left than to reprimand those who tolerated ‘conflicting rules’ as an excuse for noncompliance.

The industries, however, inevitably deal with conflicting values. The delivery of services cannot wait until the industries have figured out how to cope with certain conflicts. Beforehand, the sum of conflicts and their gravity are rather undetermined. Even afterwards, many operational conflicts and their effects structurally remain unrecognized. In the meanwhile, the industries are bound to deviate from rules and norms on a daily basis. Many operational workers feel condemned to compromise and adjust for incompatible instructions in the heat of operations. But after a major incident, politicians will

unremittingly condemn those workers for violating rules and regulations, as if they shirked their responsibilities. These political responses become ritualized as they systematically leave the professionals in the industry misunderstood.

Even though this means that political judgments regarding major incidents become a ritual rather than a realistic response, this does not imply that politicians should stop responding. These short but fierce junctures of political interference serve the key function of defining and redefining the public values worth protecting and correcting a shirking industry when necessary. The imperfect way in which public values get defined does not disqualify the necessity of this process. However, to assess priorities among public values in response to rising coping pressures, this ultimate political 'valve' may be neither directional nor constructive, as the risk of coping de facto shifts to the industries.

11.2 THE SUM OF PROBLEMATIC COPING PRACTICES

Rising coping pressures escape constantly and simultaneously at multiple levels in the sector, but the capacity and the sensibility of these 'valves' appear problematic at each level. At most levels, we encounter a pervasive tendency to displace pressures with reactive one-sided interventions instead of optimizing conflicts. These dominant coping practices do not seem to be the most intelligent, as they structurally avoid balancing. Nonetheless, the overall performance of the industries does not show that these practices are dysfunctional. In fact, performance figures for multiple public values show roughly simultaneous improvements and continuation without immediate drawbacks in recent years (Chapter 8). Although these performance figures might be incomplete or cooked, it still seems plausible that the whole of these fallible coping practices is more than the sum of its parts.

Apparently, the drawbacks of decoupling are being neutralized. Possible explanations are the redundancy of technological systems and the inertness of professional cultures. With regard to the latter, we found some interesting clues by tracking the operationalization of values through the organizations. We learned that coping pressures are de facto decentralized. At the front lines of operational processes, we discovered a culture of proactive coping strategies, establishing new trade-offs and structurally departing from anticipated plans and instructions at workers' discretion. Although these decentralized coping

practices are generally ambiguous, improvised, implicit and diverse, they seem to function as a robust countervailing power to the repeated application of one-sided coping responses.

The combination of these two types of coping practices – reactive responses from a centralized perspective and proactive responses from a decentralized perspective – is not accidental. Both are, in fact, a *sine qua non* for effective coping. On one hand, centralized consent on the resulting trade-offs is indispensable because of the public values involved and the democratic process to define them. Moreover, to optimize trade-offs in accordance with societal preferences, operational workers cannot do without their instructions and constant checks-and-balances. On the other hand, this centralized control system of reactive checks-and-balances would cause unacceptable value disposal without routine deviances and the situational intelligence of operational workers in the face of daily conflicts. The combination of decentralized and centralized coping practices seems inevitable.

At the same time, however, this combination brings many tensions and dynamics, since the two coping practices are inherently hostile to one another. They counterbalance each other by counteracting each other. Whereas managers and oversight bodies cope on the basis of norm deviances, operational coping constantly disrupts plans and necessitates deviations. Operational workers constantly depart from their instructions to cope with conflict situations. In turn, managerial and external interventions constantly counteract the messy operational coping practices causing norm deviances. Although both proactive and reactive coping practices are functional and necessary, the combination of these two inevitably cause frictional loss.

The same tension occurs on a sector level. Whereas oversight bodies think they compensate for the mismanagement committed in operational discretion, the network-based companies perceive it as vital to mitigate or bypass regulation from time to time, and both for the same cause. Both significantly contribute to the realization of public values.

Strikingly, these opposed coping practices tend to be dissociated in the organization, enclosed instead in separate organizational processes, cultures and departments. Managers prefer to by-pass the professional coping practices when improving performance. Likewise, we see operational workers constantly bypassing the newest projects and priorities as they do seem not to make sense when facing daily conflicts.

The risk, however, is that this disassociation between centralized and decentralized coping strategies (see also, Chapter 8) jeopardizes the strength of the organization, although from a coping perspective this dissociation is essentially functional, too. Managers organize for deviance by allowing incompatible coping practices in detached organizational environments. If not, managers would keep correcting for deviant coping practices, with the risk of mobilizing much resistance to act and losing sensibility for real-time conflict situations. When managers do not keep their distance from operational coping dilemmas, they are inclined to micromanage trade-offs, running into high transaction costs, laborious specification systems and explicating more inconsistencies than necessary. So, counter-intuitively, managers' lack of interest in decentralized coping practices serves a function. Though managers mainly aim to prevent conflicts in their control systems, they seem better off when ignoring the inevitable intricacies of competing values in operations. In doing so, they implicitly tolerate and enable the proactive coping strategies that would otherwise be viewed as unacceptable and eliminated.

Thus, the main dilemma is that decentralized and centralized coping practices fundamentally work at cross-purposes, but they cannot do so without each other either. Recognizing and dealing with these tensions should not disqualify the organization or the way it is managed. In fact, this inevitable struggle of incompatible coping practices enables industries to buffer the inconsistencies among the many objectives in their oversight environment. The practical implication, however, is that there is no straightforward or stable recipe to sustain this buffer function.

Tolerating unverifiable improvisations at workers' discretion can not be a stable situation. Coping pressures are neutralized, as the sector implicitly organizes its own deviances, but, simultaneously, the sector again systematically tries to eliminate these deviances. Still, a major relief is that this emerged system of entangled coping practices seems to work, though we learned that its sensibility is built on quicksand. The same operational discretion the sector needs to deviate in sensible ways disables the sector's ability to verify these decentralized optimizations. At the same time, it generally does not occur to managers and oversight bodies that the industry must constantly cope with this instability. Instead, they expand and perfect their system of reactive checks-and-balances. In effect, overall performance may improve, apparently, but possibly at the expense of either unarticulated public values or more efficient coping routines in operations. In the long term, the

increase of these checks-and-balances may prove inadequate and even deprive the industries of their tacit ability to cope with multiple competing public values simultaneously.

So, the current fragmented oversight system seems to go hand in hand with rising or stable performance figures, roughly. When we take this as an evidence of effectiveness, there still is a considerable efficiency argument against the current system. The rising cross-pressures may not signal increasing efficiency per se, as suggested above. They may as well reflect counterproductive tensions of coping actions and reactions holding each other in check. It is plausible that more understanding and trust at both sides could save a great deal of transaction costs. Yet, uncertain is whether this system of checks-and-balances would be as effective and robust when it is managed more efficient and more conscious. Sustaining the current effectiveness of moderately disconnected coping practices might be invaluable and not less challenging, in comparison to immediately chasing these efficiency opportunities as well.

11.3 INSTITUTIONALIZING SENSIBLE COPING

Our understanding about how value conflicts are buffered within the industries seems to rule out a straightforward recipe for institutionalizing sensible coping strategies. By sensibility we mean the extent to which the trade-offs resulting from coping strategies harmonize with ‘the preferences of the sector’ in the operational detail. To attain this, the sector needs to accommodate both the proactive coping practices in operations as well as reactive interventions in the rest of the sector but without leveling out their mutual incompatibilities causing constant tensions.

We briefly explore alternative ways to attune these two opposed coping practices without smoothing away the inherent tensions between them. Reactive interventions will always be necessary and dilemmatic, though their adverse effects could be mitigated if managers and oversight bodies attained a collective critical attitude towards the hardening of single objectives, which fragmented institutional settings particularly provoke. Next, the first line of middle managers has a key position in adjusting and encouraging operational coping responses when necessary, but their effectiveness seems to depend on the preservation of operational discretion.

SENSIBLE INTERVENTIONS

Managers and oversight bodies must be aware of their limited mandates when intervening for a single objective in the delivery of utility services. Each new one-sided intervention may inconsiderately add to the coping pressures. Notorious suspects are the absolute prerequisites, non-fungible priorities and digital judgments made based on hard percentages up the *n*th decimal place, as quite some oversight bodies and managers prefer to. The more fundamental problem, however, is that more moderate interventions are suspect as well. Particularly as one intervention typically triggers others. A dozen moderate interventions made by various oversight bodies can just as easily add up to a counterproductive net result, even without a concrete norm conflict.

A prisoners' dilemma emerges. To allow for sensible trade-offs, each manager and each oversight body should refrain from its most effective interventions for collective gain. This dilemma requires a collective understanding that interventions, uncontested as their intentions might be, still need to be moderate and respect the required autonomy of infrastructure operations. Yet, moderate interventions not only lose effectiveness, they, too, reward the more aggressive interventions. So, when only part of the sector anticipates the multi-value complexities in operations, these intentions we prescribe only result in less balanced trade-offs.

The new institutional settings have created rather tough conditions for this prisoners' dilemma. The walls thickened. The new institutional landscape entails many new interdependent organizations, influencing each other with increasingly remote interventions. Many new organizations have emerged in the sector without experience and without responsibility to recognize competing public values and sector-specific interdependencies and bottlenecks. On the contrary, the new organizations are particularly eager to claim a position for their own objectives. At the same time, many new interdependencies were created with the introduction of new objectives, both public and private. So, many new conflicts emerged between organizations. Without a collective and critical attitude towards the isolated hardening of single interests, these new institutional settings only catalyze the displacement of conflicts to the operational level, as this thesis demonstrates.

Reducing the number of oversight bodies or joining-up in various degrees would seem a corollary design principle to many (i.e. WRR 2008, p.191-4). Indeed, more coordination or system responsibility among oversight bodies may *prevent* part of the conflicts we encountered by anticipating

interdependencies and inconsistencies. Mind, however, that this remote centralized perspective is unfit to actually *coordinate* the dilemmas of competing public values oversight bodies currently provoke in operational practice. First of all, oversight bodies would again need larger mandates for these extra coordination tasks. More important, the ultimate join-up of oversight may even undermine coordination as it triggers more interference, micromanagement of conflicts and more pressure to get rid of 'deviant' but crucial coping strategies in operations. At the end of the day it will inevitably be the operational workers that need to cope again.

SENSIBLE IMPROVISATIONS

Thus, operational improvisations appear increasingly critical to the industries' ability to balance many competing stakes and oversight objectives. To allow for sensible improvisations, however, operational workers are generally left unsupported. They are assigned neither protocols nor explicit mandates to improvise beyond the given instructions. Formally, workers follow a 'plan-do-check-act' cycle each time they give managers feedback on their daily improvisations. After a while, managers supposedly give workers feedback in return on what to do. This cycle is constantly started, but structurally fails to come round.

Feedback on operational coping fails because managers attach a very different meaning to it than would operational workers. Unique dilemmas in operations prove statistically irrelevant from a strategic perspective. Moreover, managers focus on single-value problems. They sanitize feedback of its conflicts before making sense of it. Consequently, the feedback operational workers give tends to lose relevance when ascending to higher levels and the feedback workers receive in return is devoid of all validity in practical conflict situations. This is why formal feedback loops tend to be rather ineffective, artificial and inoperative. Fortunately, industries have found other ways to support decentralized coping besides formalizing and constantly re-designing feedback systems. We give a few examples.

In contrast to the increasing pressure for external accountability, NS and ProRail are currently convinced that smoothing operational trade-offs requires less internal accountability. Since this research was conducted, these organizations have revised many of their operational instructions and made them less directive. This change aims to encourage discussion among operational workers about their daily dilemmas. Such exchanges are said to

give rise to a critical attitude towards what is optimal and towards interpreting organizational objectives in conflict situation. Middle managers generally frame ‘discussion among operators’ as an indicator of success. Their conviction is that more professional coping responses develop from these discussions and the mandate to explore different strategies.

These discussions of daily dilemmas, too, flourished when mechanics and their chiefs at ENEXIS collectively established their own database on the bottlenecks they encountered from day to day. Although strategic managers find it difficult to translate their observations into performance analyses and decisions, that is not strictly necessary. For the sensibility of operational coping responses, these discussions can be highly valuable in themselves.

The same effect occurred in another NS initiative. ‘Train teams’ were created, giving a group of employees responsibility for a fixed line each day. These teams learned about recurring conflicts among the interests of controllers and passengers. Over time, these teams, together with controllers and passengers, developed more advanced strategies to deal with the intricacies of the many competing stakes and tasks.

Along similar lines, ProRail has reunited controllers within the unbundled industry in one central control room, the Operations Control Center Rail (OCCR). Like the other initiatives, this control room facilitates rich interaction between the different controllers’ processes in real time. The close interactions controllers have in this control room, in the physical presence of one another, help them to attain collective sensibility towards multiple conflicts and prevent the incremental development of a catch-as-catch-can attitude when pressures rise.

Numerous such initiatives enable development of sensitive coping practices at the discretion of those at the front lines. The difficulty is to find a hard success indicator that fully expresses the elated mood this often brings to the workers coping at their discretion. After all, resources spent on these initiatives need to be accounted for in terms of aggregate performance effects too. But as separate performance figures constitute the dominant decision criteria in the managerial process, targeted interventions are constantly preferred above these bottom-up initiatives, which structurally remain underexploited.

Besides a partly appropriate aversion of managers to spend resources without hard success guarantees, perhaps a more crucial bottleneck is the competence and the task perception of the first line of middle managers and

their staff. They hold a key position at the interface between coping in the operational process and coping in the rest of the organization and sector. Our findings suggest that their task comprises much more than bringing practice in line with the plans, as is commonly assumed. To support operational coping practices, these middle managers and their staff also function as a shield against strategic interventions, from their organization and the rest of the sector, that incrementally raise coping pressures. Ideally, these managers are simultaneously able to think about the coping dilemmas facing their employees and connect them to the strategic preferences of the organization. In the worst case, middle managers tolerate operational coping strategies only by ignoring conflicts, so by entrusting them to the operational workers.

As a result of these two incompatible tasks of managerial oversight – reconciling practice with plan and shielding operations from strategic interventions – these middle managers and their staff constantly bear the brunt of both sides. This may also explain the difficulty each organization has to shape these positions. The risk is that these managers and their staff will go under, uncritically obeying inconsistent demands, degenerating into mere intermediaries, passing on information, running from pillar to post and chronically leaving their operational workers unsupported. Embodying this inevitable struggle at the lowest level of middle management seems key to sustain sensible improvisations and to rescue the organizations from flip-flopping priorities over time.

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Summary in Dutch

STRIJDIGE PUBLIEKE WAARDEN
Strategieën voor conflicten in sterk gereguleerde netwerksectoren

Treinen moeten punctueel volgens het dienstrooster rijden. Dat is een graadmeter voor NS om te zien of het treinverkeer ordelijk verloopt en daar rekent het ministerie NS ook op af. Maar wat nu als een groep voetbalsupporters zich ophoudt nabij het spoor. Moet de machinist dan voorrang geven aan punctualiteit, of aan veiligheid? Of ligt die beslissing bij een treindienstleider van infrastructuurmanager ProRail?

Nog een voorbeeld. De bedrijven die zorgen voor het energienetwerk moeten de leveringszekerheid garanderen. Haaksbergen heeft laten zien hoezeer we onthandt kunnen zijn zonder energielevering. Om die leveringszekerheid op lange termijn te garanderen zijn continu investeringen nodig in onderhoud en vervangingen. Maar de ruimte om te investeren is begrensd door onder meer het tariefsysteem van de Energiekamer en de rendementseisen van de aandeelhouders. Energiebedrijven moeten daarom voortdurend de balans zoeken tussen efficiency op de korte termijn en leveringszekerheid op lange termijn. In de uitvoering kunnen extra investeringsbeslissingen bovendien tot nieuwe keuzes dwingen als tegelijkertijd ook klanten meer offertes voor aansluitingen indienen en monteurs in alles wat ze doen blijven streven naar hoge klanttevredenheid en maximale veiligheid. De slotsom kan dan zijn dat energiebedrijven tijdelijk ‘nee’ aan hun klanten verkopen of dat de kwaliteit iets afneemt.

Hoe dan ook, het streven naar de ene publieke waarde gaat uiteindelijk ten koste van een andere. Een infrastructuurbedrijf kan niet én 100% betrouwbaarheid nastreven, én 100% veiligheid, én 100% efficiency én 100% klantgerichtheid. Is het nu linksom of rechtsom, het bedrijf móet op de een of andere wijze met deze strijdigheden omgaan.

Dit proefschrift gaat over het managen van dit soort strijdigheden tussen publieke waarden of belangen. Want infrastructuurbedrijven hebben nooit te maken met het realiseren van slechts één publiek belang. Ze moeten altijd een heel palet aan waarden tegelijkertijd realiseren, van leveringszekerheid,

veiligheid, betrouwbaarheid, betaalbaarheid, universele dienstverlening tot aan duurzaamheid.

In de afgelopen vijftien jaar heeft in de meeste infrastructuursectoren een zekere mate van liberalisering en privatisering plaatsgevonden. Om de publieke belangen in deze nieuwe situatie te borgen zijn toezichthouders in het leven geroepen en reguleringskaders ontwikkeld. In vergelijking met vroeger heeft een infrastructuurbedrijf nu met veel meer ministeries, toezichthouders en andere instanties te maken die tegelijkertijd toezien op diverse publieke waarden middels vele normen.

Soms stellen deze overheidsinstanties tegenstrijdige eisen aan het infrastructuurbedrijf. Een team van baanwerkers bijvoorbeeld moet van de ene instantie alert kunnen zijn op het geluid van een aankomende trein en van de andere instantie oorbeschermers op indien ze meer dan de norm aan decibellen produceren.

Het gaat niet alleen om conflicterende normen. Sommige publieke belangen blijken minder expliciet of zelfs geen onderwerp van contracten of toezichtskaders. Hoe vinden afwegingen plaats als de ene groep publieke belangen (veiligheid, punctualiteit, efficiëntie) expliciet in een toetsingskader staat genoemd, en de andere groep (solidariteit, klanttevredenheid, duurzaamheid) impliciet blijft?

Het komt ook regelmatig voor dat normen niet volledig en definitief hun onderliggende publieke belangen borgen. Punctualiteit staat bijvoorbeeld niet altijd garant voor een tevreden klant. Ook sociale veiligheid in het openbaar vervoer blijkt in de praktijk erg subjectief en moeilijk in normen te vatten. Deze spanningen tussen normen en waarden geven vaak weer aanleiding tot preciezere normen en aanvullende maatregelen, die op hun beurt ook weer tot nieuwe afwegingen kunnen leiden.

De brede vraagstelling van dit onderzoek is hoe infrastructuurbedrijven omgaan met de vele, mogelijk strijdige, eisen die hun omgeving aan nutsvoorzieningen stelt. Deze vraagstelling bleek niet eenvoudig te onderzoeken. Niet alleen bestaan deze bedrijven uit duizenden werknemers die allemaal tegelijkertijd dagelijks afwegingen maken. Tijdens ons onderzoek bleek bovendien dat respondenten vele afwegingen in hun dagelijkse werk niet benoemden. Velen onder hen vonden het een moeilijke of rare vraag in hoeverre de doelstellingen die ze dagelijks nastreefden strijdig waren en welke afwegingen plaatsvonden.

Na verloop van tijd ontdekten we dat de bedrijven, naast diverse formele en informele manieren om hun doelstellingen uit te balanceren, conflicten structureel ook impliciet verwerkten. Infrastructuurbedrijven weten onbewust afwegingen uit te stellen of weg te organiseren. Soms kunnen de bedrijven het ene conflict tegen het andere wegstrepen door op het ene moment betrouwbare dienstverlening te prioriteren en op een ander moment veiligheid.

Veel strijdigheden blijken pas aan het licht te komen in de operationele werkomgeving als bijvoorbeeld machinisten of monteurs in het hier en nu moeten handelen. De machinist kan niet eindeloos met het hoofdkantoor bellen om te vragen of hij nu moet wachten of wegrijden. Ook een monteur kan in dezelfde tijd meer resultaat boeken door een conflictsituatie zelf aan te pakken dan door zijn manager proberen uit te leggen hoe de verslechterende omstandigheden en deadlines hem steeds moeilijker in staat stellen aan alle regels te voldoen.

Operationele medewerkers weten veel strijdigheden te neutraliseren, maar dit zorgt ook continu voor spanningen. Regelmatig zien operationele medewerkers, vanuit hun vakmanschap, de noodzaak om soepel met randvoorwaarden om te gaan of lijnrecht tegen normen in te gaan. Deze spanningen bereiken soms het management en de toezichthouders, maar die niveaus reageren pas als ze denken dat een specifieke waarde onder druk komt te staan. Hun interventies bieden consequent weinig ondersteuning voor de daadwerkelijke afwegingen in de operatie.

Doel van dit onderzoek is te begrijpen hoe infrastructuurbedrijven omgaan met strijdigheden tussen publieke belangen. We ontdekten dat infrastructuurbedrijven niet al hun afwegingen in de strategische planfase voorprogrammeren. De bedrijven laten, deels impliciet, veel moeilijke afwegingen open, totdat de operationele gang van zaken keuzes afdwingt. Het is verrassend te zien hoe succesvol organisaties kunnen zijn, terwijl ze vele moeilijke afwegingen niet managen. Tegelijkertijd is deze situatie echter instabiel en vormt ze een fundamenteel dilemma op sectorniveau, tussen de noodzaak voor ruimte de strijdigheden in de operatie op te lossen zonder deze te managen *en* de noodzaak voor verantwoording naar externe toezichthouders.

De samenvatting volgt hierna de opbouw van het proefschrift.

HOOFDSTUK 1: INTRODUCTIE

Institutionele ontwikkelingen in de nutssectoren hebben sinds de jaren negentig vele verbeteringen opgeleverd maar ook nieuwe knelpunten. De borging van publieke belangen creëert voortdurende onrust in publieke debatten en dit voedt doorgaans de behoefte aan meer en scherper toezicht. Het aantal interveniërende instanties rondom nutssectoren is in deze periode ook sterk toegenomen met toezichthouders, handhavers, inspectie-eenheden, ministeries, lagere overheden, aandeelhouders, raden en kamers.

Infrastructuurbedrijven ondervinden bij het uitvoeren van hun taken mogelijk hinder van dit geïnstitutionaliseerde wantrouwen rondom hen. Onduidelijk is of hun prestaties dankzij of ondanks een toename aan toezicht tot stand komen. Onduidelijk is ook meestal welke afwegingen nodig zijn of nodig zijn geweest om aan bepaalde vereisten tegemoet te komen en of de kosten wel opwegen tegen de baten. Om inzicht te krijgen in de effectiviteit van overheidssturing kijkt dit onderzoek naar hoe infrastructuurbedrijven in de huidige institutionele verhoudingen van dag tot dag met de vele, mogelijk strijdige, eisen uit hun omgeving omgaan.

HOOFDSTUK 2: THEORIE: OMGAAN MET CONFLICTEN

Allereerst gebruiken we enkele concepten uit de wetenschappelijke literatuur om de relatie tussen infrastructuurbedrijven en overheidstoezicht te beschrijven. Het ‘principal-agent model’ bevat generieke aannames, zoals ‘informatie asymmetrie’ en ‘moral hazard’ op basis waarvan overheidsinstanties toezicht organiseren. In aanvulling hierop laten studies naar het ‘multiple principals problem’ zien hoe een gefragmenteerde omgeving effectieve beïnvloeding van buitenaf verder kan compliceren.

Vervolgens brengen we literatuur over ‘copingstrategieën’ samen om het zeer gevarieerde organisatiegedrag in reactie op strijdige eisen te begrijpen. Een raamwerk weet de variëteit aan strategieën in de literatuur terug te brengen tot twee dimensies waarmee tijdens de analyse onderliggende mechanismen systematisch zijn te verklaren. Dit raamwerk (zie figuur 1) onderscheidt strategieën die conflicterende belangen ofwel ‘gekoppeld’ ofwel ‘ontkoppeld’ afwegen. Een ‘gekoppelde’ strategie leidt tot een compromis tussen meerdere waarden. ‘Ontkoppelen’ is niet compromisgericht, maar gaat 100% voor één

waarde en 0% voor de andere. Daarnaast onderscheidt dit raamwerk strategieën die ‘doelbewust’ met een conflict omgaan van strategieën die afwegingen als ‘emergent’ of spontaan laten ontstaan.

	Doelbewust	Emergent
‘Ontkoppeld’	bijv. veiligheid afschermen van conflicten	bijv. om en om aandacht geven aan waarden met de waan van de dag mee
‘Gekoppeld’	bijv. een kosten-baten analyse maken	bijv. een knoop moeten doorhakken zonder de situatie te overzien

Figuur 1: Vier manieren om conflicterende belangen te hanteren

HOOFDSTUK 3 & 4: ONDERZOEKSAANPAK MET DRIE CASESTUDIES

In deze twee hoofdstukken bakenen we het onderzoek af tot dagelijkse afwegingen tussen publieke belangen in de core business van drie Nederlandse bedrijven, te weten reizigersvervoer door NS, verkeersleiding door ProRail en het beheren van elektriciteitsnetten door ENEXIS, voorheen Essent Netwerk. Het interessante van deze casestudies is dat deze bedrijven dezelfde soort institutionele veranderingen hebben doorgemaakt, namelijk een zekere mate van liberalisering en splitsing, daarnaast continu bloot staan aan het publieke debat en ondertussen een technologisch systeem in de lucht weten te houden.

In een dwarsdoorsnede van de organisaties zijn we nagegaan waar omgevingseisen binnenkomen, en welke weg de eisen vervolgens afleggen. Deze weg noemen we het operationaliseren van omgevingseisen: van een strategisch plan naar een gedetailleerd handboek tot het realiseren van de plannen in de operatie, waarna managers deze prestaties weer aan elkaar en hun

omgeving verantwoorden. Langs deze weg vonden vele interviews plaats met planners, strategische managers en stafmedewerkers in het planningsproces; met conducteurs, machinisten, transport controllers, treindienstleider, netwerkbestuurders, uitvoerders en monteurs in de operatie; en met lijnmanagers die dagelijks toezien op deze operationele medewerkers. In de uitvoering bleek het veel informatiever om ook halve dagen met operationele medewerkers mee op pad te gaan en de alledaagse werkzaamheden te observeren op de trein, in de controlekamer of in het veld.

Onze onderzoeksaanpak wijkt bewust af van het perspectief waarmee de bedrijven zich normaliter aan toezichthoudende instanties dienen te verantwoorden. We nemen dezelfde normen en doelen van het toezicht als uitgangspunt maar vatten ze breder op in termen van publieke belangen en gaan na hoe werknemers van de bedrijven die interpreteren in hun dagelijks werk. We verzamelen data over de doelstellingen van respondenten zoals ze die percipiëren en realiseren, en welke problemen ze daar mogelijk bij ondervinden. Dus niet de uiteindelijke optelsom van afwegingen staat centraal maar *hoe* de bedrijven afwegen.

Vier empirische hoofdstukken presenteren een overkoepelende analyse voor de drie casestudies.

HOOFDSTUK 5: HERKENNEN DE BEDRIJVEN WEL DE CONFLICTEN?

Een opvallende bevinding was dat infrastructuurbedrijven een reeks conflicten en afwegingen tussen publieke belangen structureel niet onderkennen. Dat wil zeggen, we kwamen vele voorbeelden van afwegingen tegen die plaatsvonden zonder dat de organisaties of onze respondenten die expliciteerden. Ten tijde van het onderzoek bijvoorbeeld schreef een regel in het handboek van conducteurs voor om altijd op tijd te vertrekken. Een gedetailleerde specificatie van uitzonderingen wanneer vertragingen wel mochten om bijvoorbeeld een aansluiting te realiseren was recent afgeschaft. In de dagelijkse werkpraktijk van conducteurs conflicteert punctualiteit echter voortdurend met tal van andere publieke belangen, waar dus geen regels voor waren. Een ander voorbeeld betreft afwegingen rondom veiligheid. Waar vele managers, evenals vele operationele medewerkers, veiligheid als harde randvoorwaarde stellen, blijkt veiligheid toch zachter in de praktijk: de ene veiligheidsregel kan een ander veiligheidsrisico versterken en wat voor de één veilig is kan de ander als

onveilig ervaren. Opvallend is bovendien dat managers niet alleen veiligheid maar ook veel andere publieke belangen een harde randvoorwaarde noemen. Vanuit hun rol om deze belangen te borgen is deze houding heel begrijpelijk. Vanuit de opgave om vele strijdige doelstellingen tegelijkertijd te balanceren is dit moeilijker te begrijpen.

HOOFDSTUK 6 T/M 8: HOE HANTEREN DE BEDRIJVEN CONFLICTEN?

Drie empirische hoofdstukken beschrijven de gevarieerde wijze waarop infrastructuurbedrijven vele onverenigbare eisen tegelijkertijd nastreven. De analyse omvat drie organisatorische processen: de planning, de operatie en het management. Door de reikwijdte van de analyse zijn we in staat te verklaren waarom de organisaties vele afwegingen niet herkennen.

Hoofdstuk 6 beschrijft het planningsproces. Het planningsproces heeft twee gezichten. Centrale planningsystemen stellen de bedrijven in staat budget, capaciteit of andere middelen voor een groot deel systematisch te verdelen over meerdere belangen. Tegelijkertijd echter richten vele planners en managers zich voornamelijk op het specificeren van geïsoleerde belangen. Vanuit ons raamwerk bezien vindt impliciet veel ‘ontkoppeling’ plaats. Later blijkt dat conflicten structureel afwentelen naar de operationele fase.

Hoofdstuk 7 beschrijft het operationele proces. In tegenstelling tot het planningsproces dwingt het operationele proces tot onvoorziene afwegingen. Operationele medewerkers ontmoeten regelmatig ongeplande dilemma’s die om pijnlijke keuzes tussen publieke belangen vragen. De beslisregels die er zijn richten zich bijna altijd op het beschermen van een enkel belang en niet op de afweging. Daardoor komen beslisregels ineens lijnrecht tegenover elkaar te staan. De strategieën om hier mee om te gaan blijken erg divers. Sommige operationele medewerkers proberen in het hier en nu op een ‘gekoppelde’ manier te optimaliseren. De één doet dat op routine, de ander improviseert meer. Een ander type medewerker is juist geneigd conflicten vanuit een strenge taakopvatting te ‘ontkoppelen.’ Treindienstleiders bijvoorbeeld wijden zich soms geheel aan de veiligheid waardoor andere controllers van ProRail en NS de controle verliezen over het logistieke proces. Ook daar leren de organisaties mee om te gaan, in eerste instantie door te redden wat er te redden valt. Maar of operationele medewerkers nu de ongeplande conflicten het hoofd bieden of niet, als de werkdruk toeneemt, dreigen ze steeds vaker het overzicht over hun afwegingen te verliezen.

Hoofdstuk 8 beschrijft tot slot het managementproces waarin we wederom zien dat de organisatie zich richt op geïsoleerde en tijdelijke prioriteiten. Het blijkt ook voor lijnmanagers en hun staf structureel moeilijk te zijn om ongeplande conflicten in de operatie te onderscheiden. De geaggregeerde en gefragmenteerde feedback die ze ontvangen maken het managers in dit proces opnieuw lastig om de operationele dilemma's te ondervangen en de discretionaire oplossingen te ondersteunen.

'Ontkoppelen' is dus een opvallend veel voorkomende strategie in alle drie de organisaties, maar met het gevolg dat de ongeplande strijdigheden zich opstapelen in de operationele processen buiten het zicht van het management om. Met vakmanschap weten operationele medewerkers momenteel deze strijdigheden grotendeels het hoofd te bieden, maar dit spreekt niet voor zich. Omdat de organisaties deze impliciete strategieën niet goed lijken te doorzien, kan het aantal conflicten dat afschuift naar de operatie ongemerkt toenemen. Dit zal op den duur steeds meer onbedoelde afwegingen gaan genereren en management interventies uitlokken.

HOOFDSTUK 9: MOETEN REGULERENDE OVERHEIDSINSTANTIES ZICH ZORGEN MAKEN OM STRIJDIGE PUBLIEKE BELANGEN?

Dit hoofdstuk reflecteert vanuit het regulatieperspectief op de eerdere bevindingen. We beargumenteren dat regulerende instanties zich betrokken zouden moeten tonen bij de strijdigheden tussen de eisen die ze stellen voor vele publieke belangen.

Handhavers, kamers en toezichtouders letten scherp op de prestaties van infrastructuurbedrijven voor individuele publieke belangen, vaak in geformaliseerde zin. Verder ontwikkelen ze regels, normen of adviezen die conflicten voornamelijk op een 'ontkoppelde' manier benaderen. Afwegingen tussen publieke belangen krijgen opvallend weinig aandacht. Een inspectie-eenheid is gericht op veiligheid. Een ministerie ziet toe op de betrouwbaarheid. Publieke aandeelhouders stellen eisen aan het rendement, etc. Maar geen instantie beoordeelt hoe het infrastructuurbedrijf nu juist die moeilijke afweging heeft gemaakt tussen publieke belangen. Dat afwegen lijkt een kwestie van vertrouwen *zolang* de prestaties geen aanleiding geven tot het tegendeel.

Als de bedrijven een bepaald publiek belang te weinig prioriteren, dan zien overheidsinstanties het als hun taak druk uit te oefenen voor hun

deelbelang zonder zich te verantwoorden welke (operationele) afwegingen ze vervolgens noodzakelijk maken. De groeiende hoeveelheid normen, toezichtlast en regeldruk is al een onderkend gevaar voor de effectiviteit van overheidssturing, maar onze bevindingen laten nog een andere kant van dit gevaar te zien. Bedrijven overzien zelf namelijk ook niet volledig in welke mate omgevingseisen in de operatie strijdig zijn en tot welke afwegingen dit leidt. De 'informatie asymmetrie' die regulerende instanties veelal percipiëren is in dit geval dus geen moedwillig rookgordijn van de infrastructuurbedrijven. Het blijkt een veel fundamenteler probleem om de toezichtlast van externe interventies in te schatten en onbedoelde afwegingen in de operationele processen te voorkomen.

Doordat de terugkoppeling op (neven)effecten van externe inmenging structureel uitblijft, ontstaat een vicieuze cirkel waarin de interventies van overheidstoezicht zelf nieuwe interventies uitlokken. Ondertussen blijven alle regulerende instanties druk uitoefenen voor hun deelbelangen, met op jaarbasis telkens hogere prestatie-eisen en strengere normen in reactie op incidenten, terwijl de strijdigheden van eisen in de operatie ongemerkt oplopen. Een betere benutting van het spoornetwerk vraagt bijvoorbeeld om extra veiligheidsmaatregelen die op hun beurt in de operatie weer dwingt tot een afnemende punctualiteit zonder dat hier een geplande afweging aan ten grondslag ligt. Of, een ander voorbeeld: overheidsbeleid leidt tot meer administratielasten voor operationele medewerkers waardoor ze dezelfde strijdigheden in minder tijd op moeten lossen.

Een moeilijker bij te sturen effect van het toenemende aantal eisen is bovendien dat operationele medewerkers hun routines aanpassen aan de groeiende inconsistenties in hun dagelijkse werkomgeving. Als het aantal conflicten toeneemt, gaan sommige operationele medewerkers zich steeds meer beperken tot hun formele taakspecificaties. Monteurs en hun uitvoerders richten zich op korte termijn projecten en schuiven langere termijn projecten voor zich uit. Een ander voorbeeld is de aansluitende trein die net vertrekt vlak voor de aansluiting zou kunnen plaatsvinden.

Deze reacties in de operatie zijn deels het gevolg van externe druk die de uitvoerende organisaties ongemerkt aanzet om conflicten te 'ontkoppelen.' Prestaties kunnen hierdoor verbeteren op de korte termijn. Op lange duur kan deze druk echter de veerkracht van het operationele proces om conflicten op te vangen ernstig aantasten, als bureaucratische routines om afwegingen te vermijden de plaats innemen van het huidige vakmanschap. Dit probleem vindt

grotendeels buiten het zicht van regulerende instanties plaats, maar ondertussen zijn ze wel medeveroorzaker.

HOOFDSTUK 10 & 11: CONCLUSIES EN IMPLICATIES

Hoofdstuk 10 vat de empirische bevindingen samen en formuleert theoretische implicaties met betrekking tot de effectiviteit van overheidsinterventies. Terugkijkend op de strategieën die infrastructuurbedrijven hanteren om strijdigheden tussen omgevingseisen te neutraliseren blijkt 'ontkoppeling' een dominant organisatieprincipe. Een voorbeeld van ontkoppeling troffen we aan in het planningsproces waar verschillende afdelingen voor diverse publieke belangen apart specificeren in de veronderstelling conflicten uit de weg te gaan.

Het gevolg is dat vele strijdigheden tussen publieke belangen structureel decentraliseren naar het operationele proces. De dilemma's die operationele medewerkers vervolgens moeten oplossen laten zich ook slecht managen. Hun vakmanschap vormt momenteel een vangnet, maar dit geeft niettemin continu aanleiding tot een reeks onbedoelde afwegingen. Het management signaleert dit wel, maar formuleert de problemen systematisch op een geaggregeerd niveau en reageert daarom voornamelijk opnieuw met 'ontkoppelde' prioriteiten. Zo vormt de organisatie zich gaandeweg tot een emergent en impliciet systeem van checks en balances om met tegenstrijdige eisen om te gaan. Hoewel dit systeem voor de infrastructuurbedrijven momenteel niettemin goed lijkt te werken, brengt het ook voortdurend spanningen met zich mee tussen de verschillende organisatorische processen.

Deze synthese over hoe de bedrijven de moeilijk planbare strijdigheden tussen hun omgevingseisen redelijkerwijs weten te neutraliseren zet vraagtekens bij de heersende opvattingen over effectief toezicht. In deze opvattingen zijn de bedrijven namelijk typisch autonoom in hun eigen processen en benutten zij hun expertise zo strategisch mogelijk bij het stellen van hun prioriteiten. Daarom gunt het overheidstoezicht weliswaar de bedrijven hun operationele vrijheid om eventuele strijdigheden op te lossen, maar tegelijkertijd bindt het toezicht de bedrijven aan maatschappelijk wenselijke normen. Het lijkt inderdaad goed de beschreven operationele dilemma's van infrastructuurbedrijven niet beleidsmatig op te willen lossen, maar onduidelijk blijft vooralsnog hoe hun omgeving genoeg vrijheid overlaat om hen hier ook daadwerkelijk toe in staat te stellen.

Dit proefschrift toont dus dat strijdigheden tussen publieke belangen voor een niet onbelangrijk deel in de operationele processen terechtkomen. Om deze strijdigheden te neutraliseren koppelen de organisaties zich deels los van hun institutionele omgeving. Dit leidt tot een functioneel verlies aan controle dat niet past bij een omgeving die gericht is op handhaving van normen en het nakomen van gedetailleerde prestatieafspraken. Terwijl het controleverlies de omgeving voortdurend aanzet om haar eisen te verharden en te preciseren, zal dit het controleverlies uiteindelijk juist vergroten en de operationele processen van infrastructuurbedrijven onwerkbaar maken.

Hoofdstuk 11 bespreekt in hoeverre de omgang met conflicterende publieke belangen een knelpunt is in de huidige institutionele verhoudingen waarin vele overheidsinstanties toezien op de deels geliberaliseerde sector. Dit knelpunt lijkt de huidige prestaties vooralsnog niet te ondermijnen. Al onttrekken de sectoren zich dus deels aan het optimaliseren van conflicten, de prestaties van de afgelopen jaren wijzen juist uit dat infrastructuurbedrijven vele publieke belangen tegelijkertijd weten te realiseren en te verbeteren.

Voor de infrastructuurbedrijven legt dit proefschrift het vraagstuk bloot welke afwegingen wel en welke afwegingen niet in de planningsfase plaats zouden moeten vinden. Hoewel het onwenselijk lijkt om conflicten af te wentelen, brengt dit mechanisme de organisatie tegelijkertijd juist in stelling om moeilijk planbare afwegingen in de uitvoering het hoofd te bieden. Juist een verkokerde organisatiestructuur weet deze strijdigheden dus te decentraliseren die op een hoger niveau anders mogelijk tot meer transactiekosten en micromanagement zouden leiden.

Operationele medewerkers vormen een cruciaal vangnet voor de afschuifbare strijdigheden, wat betekent dat de borging van publieke belangen kwetsbaar is. Dit vangnet is namelijk noch transparant noch oneindig rekbaar noch eenvoudig te instrueren noch planmatig te ondervangen. Een constante dreiging is dat strijdigheden zich ongemerkt opstapelen in de operatie, omdat de feedback over deze strijdigheden geen aansluiting vindt bij het management dat voornamelijk gericht is op de naleving van gemaakte afspraken, normen en regels. Terwijl het management op basis van feedback uit de operatie continu nieuwe interventies organiseert, die in eerste instantie gewenste effecten lijken te sorteren, blijven de ongeplande dilemma’s in de operatie structureel onopgelost. Het is bovendien sterk de vraag of dit systeem van checks en balances even efficiënt en veerkrachtig is als wanneer bedrijven meer op

vakmanschap zouden vertrouwen en stimuleren. Een ander gevaar is dat minder zichtbare en minder expliciet gearticuleerde publieke belangen, waar operationele medewerkers nu wel nog veel aandacht voor hebben, steeds meer onder druk komen te staan.

Het behoud van het huidige vakmanschap in de uitvoering is daarom misschien, hoewel een moeilijke opgave, uiteindelijk een groter goed dan de telkens in het verschiet liggende prestatieverbeteringen. Naast de operationele medewerkers zelf komt deze opgave momenteel terecht bij het laagste niveau lijnmanagement. Hier kunnen de vele, expliciet geplande normen, procedures en maatregelen samenkomen met de afwijkingen die in de operatie nodig zijn om conflicten het te hoofd te bieden. Om het geïmproviseerd optimaliseren in de uitvoering te bevorderen is een aanpak gericht op handhaving en interventie op dit niveau ongeschikt. In plaats daarvan vergt het een levendige dialoog en mogelijk ook een breder mandaat op dit niveau om selectief te zijn met het corrigeren van normafwijkingen en het implementeren van maatregelen.

Het dilemma van de op afstand sturende overheid is dat er voortdurend strijdigheden tussen vele publieke belangen om afwegingen vragen. Voor een niet onbelangrijk deel is het aan de bedrijven om deze afwegingen te organiseren. Op hun beurt zijn deze bedrijven weer afhankelijk van hun impliciete strategieën om conflicten het hoofd te bieden en van de dialoog op het laagste niveau lijnmanagement. Het externe toezicht krijgt hier structureel geen feedback op. Ook de bedrijven overzien deze opgave niet volledig.

De effectiviteit van toezicht loopt dus gevaar als alle overheidsinstanties taakvast en doelgericht vanuit hun deelbelang prestatieverbeteringen najagen en normen preciseren. Deze borging kan *per* publiek belang uiterst effectief zijn maar werkt contraproductief voor het realiseren van de waaier aan publieke belangen. Regulerende instanties zullen daarom gezamenlijk de ruimte moeten laten aan de operationele processen om wenselijke afwegingen tussen publieke belangen mogelijk te maken.

Dit proefschrift heeft laten zien hoe strijdige publieke belangen tot vele discretionaire afwegingen leiden in de operationele processen. Omdat managementsystemen en reguleringsmodellen structureel aan de oorzaak van deze afwegingen voorbijgaan, dreigt het huidige vermogen van operationele strategieën om conflicten te neutraliseren sluipenderwijs te verdwijnen.

Bauke Steenhuisen
Delft, augustus 2009

Curriculum Vitae **Bauke Steenhuisen**

Bauke Steenhuisen (Hoogeveen, 2 July 1980) graduated from Anna van Rijn College in Nieuwegein in July 1998. He obtained his engineer's degree in Systems Engineering, Policy Analysis & Management at Delft University of Technology in March 2004. His master's research, supervised by dr. Willemijn Dicke, addressed flood protection and international cooperation. In March 2004 he became a member of the research group Policy, Organization & Management at Delft. In January 2005 he began his PhD research concerning the effects of liberalization on utility service provision and the management of competing public values. In October 2009 he finished his PhD and continued working as assistant professor.

Epilogue

INFRASTRUCTURES?

What are these
disdained festoons
of bygone centuries
hanging there, lying there
ponderous, heavy
rusty, abandoned?

They are the lines
in the face
of our societies.

Like mills and dikes
they make and break
they give and take
these infrastructures.

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