



Research Report

Understanding the Internal Commissioning Role

An explorative study on public managers in Dutch public sector organisations in their role as internal commissioner involved in the realisation phase of infrastructure projects

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Colophon

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Preface

By writing this master thesis, I am closing off my time at the Delft University of Technology through finishing my master degree in Construction Management and Engineering at the Faculty of Civil Engineering and Geosciences.

Over the last months, I had the chance to apply my knowledge, to be challenged and to gain more insight into fields of my interest: infrastructure projects and public sector organisations. It has been fascinating to dive further into the role of internal commissioner - a critical but obscure role in infrastructure project realisation that gained little research attention. I hope my research may provide useful insights for public managers in the role of internal commissioner. Furthermore, I hope my research will be a pathway for further research into the organisational field of public commissioning of infrastructure projects.

I want to thank my supervisors from the TU Delft - Leonie, Bauke and Marleen - who guided me through my graduation. Without your input and feedback, I would not have been able to perform this research. I would also like to express my gratitude to AT Osborne. This company has been willing to help me with my graduation project, even given the extraordinary circumstances of the Covid-19 pandemic. A special thanks to Alex and Jelyn, who helped me find my (online) way in the company and gave direction to this topic's practical relevancy. Lastly, I owe a special thanks to the *many* interviewees I was able to speak with and made this practice-oriented research possible.

Wishing you all a pleasant reading.

A handwritten signature in black ink, appearing to read 'Lennart Janse', written in a cursive style.

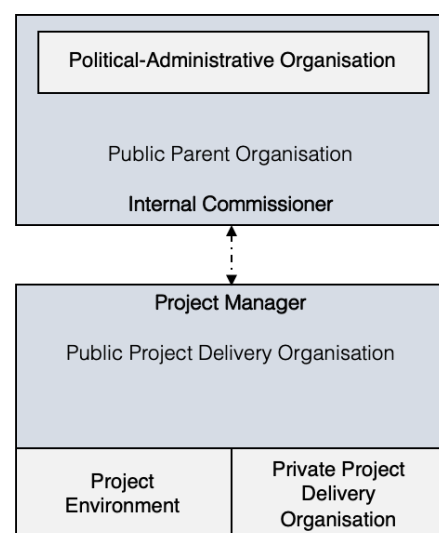
Lennart Janse
Rotterdam, April 2021

Executive Summary

A competent government is a success factor for infrastructure project realisation. Public organisations are socio-politically responsible for the project and own many responsibilities in delivering projects. Previous research assessing public organisations in the delivery of infrastructure projects mainly focussed on public project delivery organisations and their interaction with private parties. However, many challenges experienced by these project delivery organisations relate to the interaction with the public parent organisation. An effective solution for reducing these challenges would come from improving the organisational interface between the public project and parent organisations. In practice, this interface mainly materialises as the interaction between the internal commissioner (*Dutch: ambtelijk intern opdrachtgever*) and the project manager.

The internal commissioning role is an obscure but critical role in infrastructure projects. Managers in this role are often involved in large project portfolios, meaning millions and millions of public money pass through their hands. However, there is hardly any empirical research into this role and just as little framework for fulfilling this role professionally. Internal commissioners are the representative of the parent organisation towards the project. They are appointed to control whether project organisations adhere to the project assignment and are involved in important project decisions. Furthermore, they are responsible for coordinating information sharing, decision-making or other forms of interaction between project organisations and strategic management levels in their internal organisation. At municipalities, provinces and water boards, the responsibility for informing administrators - actors ultimately accountable for the project - is also part of the internal commissioning role.

The Internal Commissioner: Representative of the Public Parent Organisation



Research Methodology

To further understand the role of internal commissioners involved in project realisation, an exploratory research is executed. By a literature review and empirical research - consisting of interviews with 24 public managers identifying as internal commissioner in diverse public organisations in The Netherlands - the following research question is answered: “How can public managers in the internal commissioning role in Dutch public sector organisations, involved in the realisation phase of infrastructure projects, manage dynamic complexity in these projects?”. By answering this research question, more insight into the responsibilities belonging to the role of internal commissioners involved in project realisation is created. By analysing management practices of these managers, management recommendations, as well as suggestions for effectively organising and embedding the internal commissioning role in public organisations, are defined.

Responding to Changing Circumstances in Projects

In a stable, predictable world, it is possible to translate the strategic project objectives to a demarcated project assignment at the start of a project. The internal commissioner can then limit itself to monitoring whether the project organisation adheres to the assignment. In reality, these managers are confronted with dynamic complexity affecting the project outcomes or the goals related to the project. For example, technical uncertainties, changing organisational conditions, new laws and regulation or additional sustainability requirements. These developments may require adjustments of the defined project boundaries - demarcations of the project in terms of budget, scope, quality or planning. Due to their intermediary position, these internal commissioners have a significant role in managing dynamic complexity in projects: management strategies need to be decided upon together with stakeholders owning decision-power to the project. Several management recommendations for successfully responding to *dynamic complexity* in these projects are defined. Next to recommendations such as communicating transparently, investing in trust relationships and anticipating change, important recommendations are described below.

Management Recommendations for Internal Commissioners

Ensure a clear division of tasks with project managers

Prevent ambiguity in the division of tasks with the project manager. Due to close collaboration with the project manager, alignment on a division of tasks is needed for successful management of deviations or issues emerging throughout project realisation.

Support the project organisation in identifying risks

Actuate the project organisation to iteratively implement risk management. Support the project organisation in risk management sessions to help identify risks from a different perspective. Being involved in risk management sessions helps to get inside information on the project and allows to inform internal stakeholders on the identified risks in projects.

Find project-transcending solutions

Contribute to finding project-transcending solutions to ensure efficient alignment of resources and processes to multiple projects. Due to involvement in multiple projects and a close relationship with internal project departments, commissioners are in the position to identify management responses to dynamic complexity effective in multiple projects.

Facilitate political or administrative decision-making

Enable administrators to take responsibility for important project decisions. Political or administrative tensions resulting in a lack of support for desired management strategies can be prevented by properly facilitating administrative decision-making. Presenting different operational project alternatives and not identifying with one specific solution is important.

Project-Related Management Objectives

Strategic objectives	Reach initial project goals Add social value with projects
Tactical objectives	Effectively realise a portfolio of projects Guarantee quality in the project
Operational objectives	Ensure stable project delivery Stay within initial project boundaries

Different project-related management objectives are discussed by respondents of this research. The type of objectives pursued largely determined to what extent practitioners focused on keeping the project within the defined boundaries as defined in the project assignment, or on successfully achieving strategic objectives - possibly requiring changes in the project. An important task for internal commissioners is to carefully balance between safeguarding operational and strategic objectives during project realisation.

Management Recommendation for Internal Commissioners

Align operational project outcomes with strategic project objectives

Both project outcomes and project objectives are subject to change. Therefore, these two aspects need to be aligned over the project's progression. This requires involvement of both the project manager and the commissioner. Clear insight into developments and management actions in the operational reality can only be provided by the project team. However, the project manager should primarily focus on executing the project assignment. Furthermore, policy departments initiating projects are no longer interested in projects in the realisation phase as new projects are in progress. Because of their insight into strategic project objectives, resulting from their close relationship with strategic management levels and their involvement in defining the project assignment, the commissioner should feel responsible for detecting and acting upon discrepancies between outcomes and objectives.

Organising for Efficient Management of Projects

Are these managers agents for change or do they benefit from stable project progression? Although circumstances in the project or its environment may require adjustment of the defined project boundaries, the commissioner may prefer to avoid adjustments due to time-consuming management efforts or an affected reputation. In this research, a comprehensive overview of obstacles faced by these managers is created. From that, recommendations on improving organisational conditions are defined.

Recommendations on Organisational Conditions for Public Organisations

Organise a separate function for the internal commissioning role

Establishing a separate function for internal commissioners involved in project realisation leads to more focus on responsibilities related to the commissioning role. Therefore, it will eventually contribute to better control on changes in projects in relation to strategic objectives. Establishing a separate function also contributes to developing role maturity.

Strive for more efficiency in internal working procedures

Ambiguity on the different responsibilities in the internal organisation often results in time-consuming decision-making on changes in projects. Clear working procedures and a clear division of tasks and responsibilities contributes to quickly solving project realisation issues. With that, ensuring all involved internal stakeholders clearly understand the procedural arrangements is important. Efficient or clear working procedures can be secured by:

Setting up commissioning departments

Defining the nature of the relationship with project initiators (e.g. asset or policy departments)

Preventing ambiguity for the project manager on the approachable commissioner

Establishing clear project mandate procedures

Applying uniform organisational structures and role allocation for different projects

Frequently updating formal control systems

Compose large project portfolios consisting of similar type of projects

Being involved in a portfolio consisting of large number projects may prevent too much focus or unnecessary operational involvement in one individual project by internal commissioners. Furthermore, a portfolio with similar types of projects contributes to developing role maturity.

Involvement in operational project activities by the commissioner during project realisation is characterised as a balancing act in which excessive involvement should be avoided at all times. It is crucial for preventing time-consuming interference in responsibilities that belong to the role of project manager. The desire to stay closely involved in projects resulted from the project mandates and the related control responsibility given to commissioners.

Management Recommendation for Internal Commissioners

Respect the role of the project manager

Enable the project manager make operational decisions in case projects stay within the defined boundaries to prevent conflicts or avoid discussions. Involvement of the commissioner in projects was clearly needed if the project manager has insufficient power to act, or lacks procedural knowledge or connections with internal or external stakeholders. Commissioners only ought to overrule the project manager if the project managers interest conflict with the organisations' interests, and cannot be solved otherwise. Close collaboration with the project manager for defining management strategies is important.

Discussing the Findings

This research revealed some debates on the implementation of the internal commissioning role. A discussion relates to the optimal amount of available time per project. Being involved in multiple projects prevents the commissioner from too much operational involvement in projects. However, it was also suggested these commissioners should be given sufficient time to ensure better control of scope changes in relation to strategic project objectives. The aforementioned shows that the expected level of complexity of projects should be considered for composing a project portfolio. This research provided evidence that organisations increasingly establish a free-standing commissioning function to allow managers to spend more time on the responsibilities allocated to the commissioning role – particularly for managing changes in the project in relation to strategic project objectives. Furthermore, setting up a separate commissioning function contributes to developing role maturity. The large number of recent organisational transitions discussed in the empirical research highlighted an increased focus on the internal commissioning role by the assessed public organisations.

When project boundaries as defined in project policies are affected, the internal commissioner does not own ultimate decision-power. However, allocating a considerable level of mandates to these managers is indicated as relevant by these internal commissioners: it keeps decision-making on the operational and knowledgeable side of projects and it allows for efficient working procedures. As the relevance of enabling administrators to make political decisions and enabling project managers to decide on operational decisions was often expressed, the added value of a considerable amount of project mandates of the internal commissioner can be put into question. The fact that allocation of more mandates was often expressed in the context of efficient management - preventing side-involvement of other managers in the internal organisation - shows that clear and efficient working procedures are probably more important.

At least, the provision of project mandates to the internal commissioner should be seen as an argument for efficiency and not for being authoritarian. After all, the relationship between the commissioner and the project manager is defined as a *commissioner-commissione* relationship and not as a hierarchical control relationship. As internal commissioners are not the ultimate project authority and should also not interfere too much in projects, a more substantive question on the internal commissioning role emerges. How do they add value to the process of project realisation? Are they only appointed to execute formal project control?

Management Recommendation for Internal Commissioners

Connect and coordinate

The internal commissioning role clearly adds value to project realisation through the connecting and coordinating responsibilities allocated to this role. Internal commissioners represent the parent organisation to the project organisation. They are in the position to improve the interaction between parent and project organisations, interaction which has been indicated as troublesome for project organisations in previous literature. Practitioners can acknowledge this by being open to face obstacles or inefficiencies in the internal organisation to eventually support project managers or administrators in their responsibilities in project realisation by preventing them from having to deal with the same obstacles.

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Chapter 1

Introduction

Image: Project Hoekse Lijn
Project Portfolio of Internal Commissioner M_5: Municipality of Rotterdam
Source: nrc.nl



1.1. Introduction to The Subject

1.1.1. Public Organisations and Infrastructure Project Delivery

By law, public organisations have duties concerning safeguarding the quality of living for their citizens, and with that, duties with regard to sustaining the quality of the built environment (Hobma & Jong, 2016). They hold both proactive and reactive planning powers. Because of *proactive powers*, they can take development initiatives such as urban expansion and infrastructure construction. In this research, the focus is put on infrastructure development. Planning powers are distributed over different administration levels. Table 1-1 shows the different public organisations in The Netherlands and the type of infrastructure project within their scope. Publicly funded and (semi-) public organisations initiating infrastructure projects are excluded from this research.

Table 1-1: Public Organisations in The Netherlands (Hobma & Jong, 2016)

Public Organisation	Number	Responsible For
Rijkswaterstaat and ProRail (executive bodies of the Ministry of Infrastructure)	1	National infrastructure
Province	12	Provincial infrastructure
Municipality	390	Local infrastructure
Water Authorities	23	Local water infrastructure

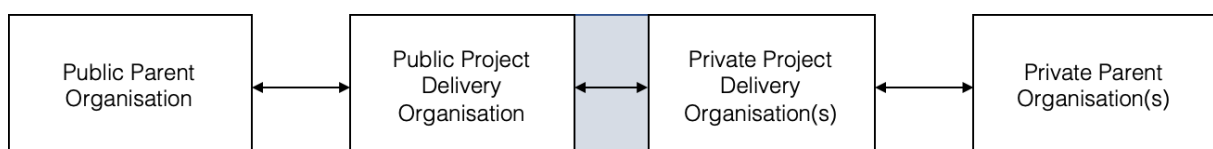
Public organisations initiating infrastructure projects are referred to as public clients, which is defined as “*the natural or legal person for whom a structure is constructed, or the person or organisation that took the initiative of the construction*” (Eurostat, 2013). However, public organisations have a plethora of additional responsibilities in the built environment: by taking development initiatives, public organisations are responsible for the realisation of public value through proper initiation, realisation and maintenance processes in construction projects through efficiently spending of public funds (Szentés & Eriksson, 2016; Hermans et al. 2018). Hence, public client organisations are also referred to as ‘*public commissioning organisations.*’ Public commissioning is defined as follows:

“How a public organisation, designs and implements its interaction with the market, concerning its responsibilities in the built environment, both internally and externally (Hermans et al., 2014, p. 21)”

Public-Private Collaboration

When speaking of public commissioning, one mostly refers to the relationship between a public organisation and private market parties (Hermans et al., 2014). Infrastructure projects are mostly realised through public-private partnerships. Although different forms of public-private partnerships exist, a public project delivery organisation is mostly collaborating with several private market parties to deliver a project (Koops et al., 2017); see Figure 1-1.

Figure 1-1: Public-Private Collaboration in Project Delivery (Koops et al., 2017)



The division of responsibilities between the public and the private side in a construction project is dependent on the chosen project delivery model and the related (contractual) arrangements between these parties (Ruijter, 2019). In the initiation phase of projects, a public organisation chooses a specific form of construction organisation by dividing the various tasks in the construction process in a certain way among the participants in the construction process (PIANOo, n.d.). Figure 1-2 provides an overview of activities that are usually publicly or privately led in infrastructure project delivery.

Figure 1-2: Publicly and Privately Led Activities in Infrastructure Project Delivery (Koops et al., 2017)

- ✓ Project management, along with contractual and scope management (including scope, risk, planning, quality, information and financial management), decision process management, stakeholder management are usually public led support activities necessary for the delivery of projects.
- ✓ Licensing, preparing and managing the project-turn over are public-led primary activities, contributing to the project results.
- ✓ Design, engineering and building are primary activities mostly led by private parties.

Since the rise of neoliberal thinking, more operational tasks and responsibilities have shifted from the public to the private sector (Ruijter, 2019). Public bodies are mostly left with governing and managing tasks. Notwithstanding, they are still closely involved in the realisation of the project (Van Der Steen et al., 2013). Also, they remain socio-politically responsible for the delivery of an infrastructure project (Eversdijk, 2013). In shaping the relationship with market parties many internal responsibilities reside, on different management levels in public bodies.

1.1.2. Competent Government: Success Factor for Project Delivery

Given their important position, competent public organisations are a success factor in the delivery of infrastructure projects (Kwak, 2015). However, for combined public-private project delivery organisations, many challenges relate to the interaction with the public parent organisation (from the perspective of the public-private project organisation, a public organisation involved in the delivery of projects is referred to as the public parent organisation). Literature related to the position of public organisations in project delivery is largely focussed on the challenging relationship between the parent and project organisation. Challenges relate to poor communication, ambiguity in the division of responsibilities, limited learning and information sharing, and conflicts of interests between different management levels (e.g. Poliakova et al., 2015; De Rooij, 2017; Hermans et al., 2019).

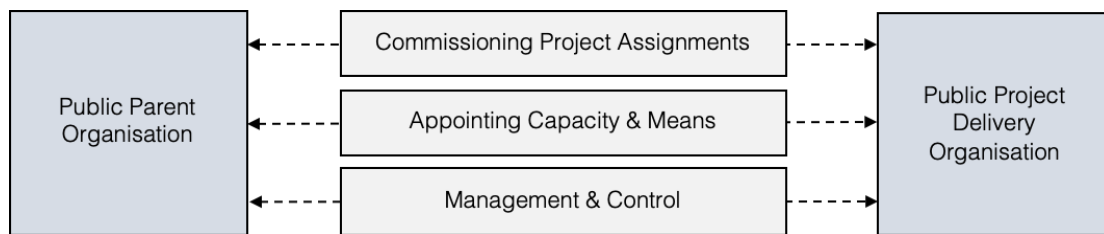
An effective solution for reducing challenges in the project delivery organisation would come from improving the organisational interface between the public project and parent organisations (Koops et al., 2017). Giving an all-encompassing description of this organisational interface is complicated due to the diverging governance models existing. As the main reason for public project organisations to interact with the public parent organisation is the accountability of this actor (Koops et al., 2017), a good understanding can be created by explaining the different accountability structures of the parent organisation in infrastructure projects; see Table 1-2.

Table 1-2: Accountability Structures of the Public Parent Organisations in Infra Projects (Koops et al. 2017)

	Accountability	Explanation
Client-Owner	Delivering the project within given constraints	The accountable actors are representatives of different public departments with specific responsibilities that relate to the delivery of a project
Owner-Operator	Current operations	Responsible for the operation of specific assets (e.g. traffic control systems, road maintenance or public space)
Licensing authority	Licensing procedures	Safeguarding legal procedures concerning the project (e.g. construction safety, operational safety, (soil) pollution, archaeology)

The interface between the public parent organisation accountable for delivering the project and the public project delivery organisation can be defined by three types of interaction. Namely, the commissioning of a project assignment, the appointing of capacity and financial means to the project organisation, and the managing and control of the project organisation (AT Osborne, 2017); see Figure 1-3.

Figure 1-3: Interaction Between the Public Parent- and the Public Project Delivery Organisation



Defining Project Boundaries

In the initiation phase, the objectives of a project to the problem to be solved are lined out (TwynstraGudde, n.d.). Public organisations are responsible for defining project boundaries in terms of scope, quality, planning - and define a related business case based on available budgets. Public managers translate political assignments into feasible decisions and project-related policies and ensure alignment with other policies and available resources within their organisation (Koppenjan et al., 2012; Hermans et al., 2019). The transition from the initiation to the realisation phase of projects is often marked by a formal decision to implement. This decision is seen as the moment in which politicians establish their mandate to realise public infrastructure projects. The main direction, the scope and the preconditions of the project are defined in this formal project assignment, based on which the project manager gives account to the public parent organisation (Koppenjan et al., 2012).

Different terminologies are used to refer to the conditions and constraints related to the project. In this research, the term 'project boundaries' is used. The term 'project boundaries' is used to refer to all sorts of restrictions, inclusions and exclusions of the project. Project boundaries are closely linked to project objectives or project-related policies. In practice, project boundaries primarily involve conditions in terms of scope, budget, planning and quality of projects.

For ensuring the operational viability of the public organisation, managers in the parent organisation are responsible for a diverse set of tasks related to the management and control of the project organisations. The public parent organisation allocates human capacity and other means necessary to realise projects to the project organisation.

Role Allocation in Project Delivery

Public organisations apply different governance models. Therefore, diverse ways of establishing client-owner responsibilities are found in different public organisations. However, some roles involved in project delivery are typically found and further described below.

The Project Manager: Operational Responsibility for Project Realisation

In the context of project realisation, the public project delivery organisation is considered as the operational level of the public organisation (Van Loenhout, 2013). They are responsible for managing project realisation and, with that, for collaborating with external partners and private market parties. From the perspective of external partners and private parties, the public project organisation is often considered as the 'public client'.

The Internal Commissioner: Intermediary Manager Responsible for Project Control

Several public managers in the parent organisation, on different hierarchical levels, may be involved in delivering the project. However, the responsibility for the execution of assignments as established by the political-administrative organisation of the public organisation is often assigned to a specific manager in the parent organisation. These managers function as the intermediary between the project and parent organisation, as the intermediary between different management levels: the operational level, the tactical level and the strategic level (Van Loenhout, 2013; Koops, 2017). Because of their intermediary position, these internal commissioners (Dutch: *ambtelijk intern opdrachtgevers*) fulfil a dualistic role: they are commissionee to their political superiors, but they are commissioners to the project delivery organisation (Koppenjan et al., 2012). These internal commissioners are responsible for the alignment of organisational goals and the project throughout the realisation phase of projects by managing alignment between projects and involved departments in the parent organisation through safeguarding their mutual interests with respect to projects (Van Dieën, 2016; Hermans et al., 2019).

No formal translation of the Dutch term 'ambtelijk intern opdrachtgever' exists. This role may be referred to as internal client, client-executive, civil principal, official client. The term 'internal commissioner' is used in this research as the word structure is similar to the Dutch term. 'Commissioner' is often used to refer to government officials as well as to the client position in projects.

The Government Administrator: Social-Political Accountability

Usually, a government administrator is ultimately accountable for the project on a political-administrative level (Dutch: *bestuurlijk intern opdrachtgever*) and thus ultimately accountable for the project to be delivered. With that, the government administrator is responsible for acquiring and retaining support in society by gaining political support, establishing policies for the projects, and informing elected officials in parliament (Van Dieën, 2016).

Table 1-3 summarises some important characteristics of these different roles. Next to the positions mentioned in Table 1-3, other public managers, project boards, steering groups or supporting business services may be part of the project delivery governance. Names and responsibilities for the different positions may vary in different governance and organisational models (Aardema & Korsten, 2009). Depending on factors such as the size and political sensitivity of projects, mandates related to projects are mostly established on a higher management level in the public organisation (Hermans et al., 2019).

Table 1-3: Roles involved in Project Delivery (Van Dieën, 2016; Hermans et al., 2018)

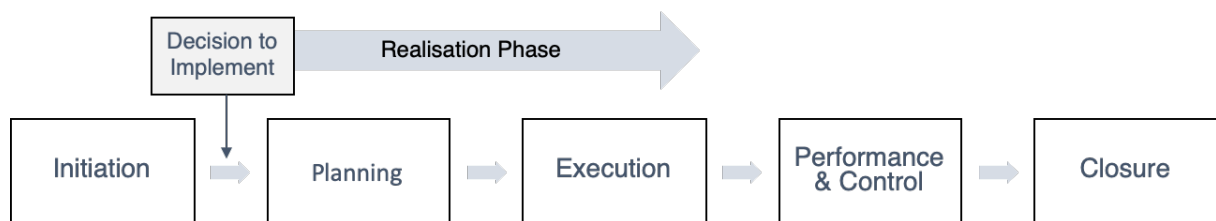
Positions	Related organisational division	Examples of related functions	Examples of related functions (<i>in Dutch</i>)
Government Administrator	Political-administrative organisation of the public parent organisation	Council of Ministers, Provincial Executives, Water Boards, Mayor and Aldermen	Ministerraad, Gedeputeerde Staten, Heemraden, Burgemeester en Wethouders
Internal Commissioner	Public parent organisation	Portfolio Manager, Program Manager, Assignment Manager	Ambtelijk opdrachtgever, Programmamanager, Opdrachtmanager, Portfoliomanager
Project manager	Public project delivery organisation	Project manager, project leader	Projectmanager, Projectleider

1.1.3. Project Realisation: The Emergence of Dynamic Complexity

One factor causing the oftentimes stressful relation between the parent and project organisation relates to additional or changing requirements imposed by the public parent organisation on the project organisation during the realisation of projects (Kwak, 2015). These changing requirements emerge from changing conditions over the course of the project, evolving in the project itself, or from external developments. Examples are changing desires of stakeholders, technological uncertainty or changing laws and regulation. Developments impacting the realisation of projects over their time span are defined as dynamic complexity in projects. This form of complexity, stemming from limited predictability and uncertainty, has been indicated as dominant and increasingly common in infrastructure projects (Hertogh & Westerveld, 2010; Bosch-Rekvelde & Sohi, 2018). Responding to dynamic complexity often leads to conflicts of interest between managers in the parent organisation and the project delivery organisation: project teams are mainly result-oriented and managers in the parent organisation more control-oriented, ensuring organisational rather than project goals (Poliakova et al., 2015; Kuitert et al., 2019a).

Dynamic complexity in infrastructure projects mainly arises after the definition of initial project plans, as project boundaries are by definition uncertain in the initiation phase of projects. Given the many challenges that relate to the interface between public project organisations and public parent organisations, predominantly in the realisation phase of projects, this research aims to further investigate the interface between these two organisations during project realisation.

Figure 1-4: Project Phasing (TwynstraGudde, n.d.)



The Internal Commissioner: Manager of Dynamic Complexity

Due to their decision-making power related to the project, internal commissioners are at the core of the implementation process. They have an important role in defining project conditions

over the progression of the project (Hertogh & Westerveld, 2010). Managers in the role of internal commissioner are positioned in the midst of different management layers and departments involved in infrastructure project realisation. As a result, they have a key position in managing dynamic complexity in projects; unforeseen developments may originate from, or impact, different management levels in the public organisation (Kool, 2013). Given their positioning and power, internal commissioners have a significant position in properly responding to dynamic complexity in projects, especially when initial project boundaries, as defined in the project assignment, are affected (Hermans et al., 2019).

1.2. Research Design

1.2.1. Knowledge Gap

Although more and more literature in the field of public commissioning became available over the last decade, there is still limited literature on the internal commissioner's management position during the realisation phase of projects. At the same time, their important role in project realisation - especially concerning the management of dynamic complexity - has been recognised (Hertogh & Westerveld, 2010; Koppenjan et al., 2012; Kool, 2013). Furthermore, for the project delivery organisation, many problems relate to the interaction with the parent organisation; which in practice primarily materialises as the interaction with the internal commissioner. Management of dynamic complexity in projects has been the subject of further research in project management practice. However, the operationalisation of management strategies by public managers in the position of internal commissioner has not been subject to further research. Hence, a fruitful direction for additional research is investigating the role of internal commissioners during the realisation phase of infrastructure projects.

1.2.2. Research Objective

Due to the limited amount of literature on internal commissioners in Dutch public organisations, this research will have a rather explorative and descriptive character, allowing to assess the role of internal commissioner in different public organisations - entailing different governance models. Based on the knowledge gap, the following research objective is defined:

“To extent knowledge on the responsibilities of public managers in the role of internal commissioner involved in the realisation phase of infrastructure projects, and to further investigate how they give substance to these responsibilities - particularly with respect to managing dynamic complexity in these projects.”

Eventually, the research aims to identify management recommendations on the role of internal commissioner involved in infrastructure project realisation.

1.2.3. Research Questions

Defining suitable research questions is one of the most challenging elements of scientific research and is decisive for successful research (Verschuren & Doorewaard, 2010).

A role is a set of responsibilities together with connected behaviour conceptualised by people in a social situation which may be assigned to a given individual or position – oftentimes used for defining the division of labour (Biddle, 1986).

The research question refers to *role* as both the set of responsibilities of internal commissioners as well as the connected behaviour will be assessed. The following research question is defined to reach the research objective:

“How can public managers in the internal commissioning role in Dutch public sector organisations involved in the realisation phase of infrastructure projects manage dynamic complexity in these projects?”

To structure the research and help answer the main research question, three sub-questions are composed. Paragraph 1.2.5. discusses the methodology used to answer these questions.

SQ1: Which management approaches for managing dynamic complexity in infrastructure projects are discussed in literature?

SQ2: Which responsibilities in infrastructure project realisation are allocated to public managers in the role of internal commissioner?

SQ3: How do internal commissioners give substance to managing dynamic complexity during project realisation in practice?

- What factors influencing practitioners' management behaviour can be identified?

SQ4: What recommendations for managing dynamic complexity in project realisation can be derived for internal commissioners?

1.2.4. Scope

For feasible scientific research, it is necessary to demarcate the scope by further operationalising and defining the used concepts (Verschuren & Doorewaard, 2010).

- This research focuses on internal commissioners in fully public organisations involved in infrastructure projects in The Netherlands (municipalities, provinces, waterboards, and the ministry of infrastructure and water management). Semi-public or publicly funded organisations are not included in this research.
- Solely *dry* (roads, rails, engineering works) and *wet infrastructure projects* (locks, flood defences, waterways) (*Dutch*: GWW-sector) are included in the research.
- Only the *realisation phase* of projects is further investigated. This phase is defined as the phase between the formal decision to implement and the delivery moment of the project.
- In this research, public managers in the role of internal commissioner are included. Focus is put on managers mainly responsible for managing and controlling public project organisations. Examples of Dutch names of such positions are shown in Table 1-3. In some organisations, an explicit distinction between the formal internal commissioner and the manager responsible for managing and controlling the project organisations exists. If this distinction is made, this research focuses on the manager responsible for managing and controlling project organisations.
- Managers in this position are usually responsible for a portfolio of projects. In this research, their role in the perspective of a portfolio, and not one specific project will be assessed as it helps gaining realistic insights into the daily practice of these public managers.

1.2.5. Research strategy

Although the research scope is narrowed down in paragraph 1.2.4, the research can still be characterised as explorative - meaning the aim is to explore reality to discover patterns (Verschuren & Doorewaard, 2010). For reaching the research objective of this empirical based and qualitative research, a research strategy is defined.

Literature Review

For understanding the theoretical context of the assessed subject, the research starts with desk research, analysing literature related to 'public clients', 'infrastructure projects', 'public commissioning', 'internal commissioners', 'managing project realisation' and 'dynamic complexity'. Focus is put on recent literature preferably published in the last decade - within the context of infrastructure projects. If additional information appeared to be necessary, the concepts are studied outside of the aforementioned context. A framework providing insight into relevant concepts for empirical research is defined based on this literature review.

Empirical Research: Semi-Structured Interviews

The subsequent step of this research is conducting semi-structured interviews. To identify relevant topics related to the object of research, an explorative research approach is suitable. However, from assessing literature on infrastructure project realisation, dynamic complexity and public commissioning, relevant topics in need of further study are also identified. Hence, conducting semi-structured interviews is a suitable research approach. A guided conversation on certain topics can take place (Verschuren & Doorewaard, 2010). However, it offers a considerable amount of leeway to the researcher for profoundly exploring the object of research, giving room to explore contextual characteristics differing for interviewee. Interviewees from different public organisations are interviewed. For increase the validity of this research on the *role* of internal commissioners and not the specific context of one manager, the aim is to include a wide range of fully public organisations. This means internal commissioners from different organisations are selected to consequently compare the outcomes of these interviews. Considering the research objective, the interviews focus on identifying the internal commissioner's responsibilities and management behaviour during the project realisation. Chapter 3 provides a detailed description of the selection of respondents and further elaborates on the applied methodology.

Analysis of Interview Data

Solely conducting interviews will not provide valuable insights, as these interviews are based on particularisation more than generalisation (Yin, 2013). However, the interview data allows for a comparative study. Therefore, after the interviews are executed, an analysis of the interview data took place. For this, a hybrid coding method in which both deductive concept-driven coding, together with inductive coding in which new concepts are uncovered based on the interview data, is applied. Based on this analysis, generalisable results are defined. Chapter 3 provides more information on the applied methodology for the empirical research.

Research Validation

In the final research phase, the research results are validated through confirmation by the interviewees and experienced experts in the field of public commissioning. Appendix C provides further information on the applied methodology for expert validation.

1.3. Relevance of the Research

1.3.1. Scientific Relevance

Several studies stressed the relevance of this research. Eisma & Volker (2014) mention the absence of research into the organisational aspects of public commissioning. Koops et al. (2017) and Szentes & Eriksson (2016) suggest further research into the interface between public project delivery organisations and their parent organisation as their studies highlight tensions in the relationship between these organisations. Several scholars stressed the internal commissioner's important position in managing project complexity: Hertogh & Westerveld (2010) and Koppenjan et al. (2012) mention that internal commissioners are best suited to have creative management solutions in managing dynamic complexity in infrastructure projects and proposed further research in this field. Subsequent studies highlight that additional knowledge on combining competing management approaches and the related organisational tensions in public organisations should become available (e.g. Koppenjan et al., 2011; Kool, 2013; Sohi et al., 2019; Ruijter, 2019; Kuitert et al., 2019b).

1.3.2. Practical Relevance

This research also has practical relevance. There is little research available on the role of internal commissioners involved in project realisation. From practice, it has been indicated that oftentimes unclarity on the responsibilities of this actor group involved in infrastructure projects exists. This research contributes to cross-organisational learning on giving substance to the role of internal commissioners. Moreover, it is well-known among practitioners that infrastructure projects are dynamic complex. Practitioners should be prepared to manage uncertainty and unpredictability evolving from this dynamic complexity. Recent events such as the corona and the nitrogen crisis in The Netherlands emphasise the importance of dealing with dynamic complexity in projects.

1.4. Report Overview

Chapter 2 provides a literature review on managing infrastructure project realisation in the context of internal commissioners' role. In chapter 3, background information on the methodology for empirical research and its subsequent analysis are provided. In chapter 4 and 5, the results of the study are presented and further analysed. These results, and their corresponding conclusions and implications are further discussed in chapter 5. This chapter also contains recommendations for further research.

Chapter 2

Literature Review

Managing Dynamic Complexity

Image: Project Waterdunen
Project Portfolio of Internal Commissioner P_4: Province of Zeeland
Source: zwdelta.nl/projecten/waterdunen



Introduction and Structure of the Chapter

This chapter includes a literature review on aspects relevant to answering the first research question on management approaches for managing dynamic complexity in projects. It is not the aim of this research to describe all literature available; recent literature on the topic is merely described to reach the research objective. The methodology used for the literature review is discussed in paragraph 1.2.5. Firstly, a background on dynamic complexity in infrastructure project is given (2.1), after which more information on management approaches and factors of influence on the applied management approaches are discussed (2.2). Lastly, the aspects are put in the context of commissioners involved in project realisation (2.3).

2.1. Project Realisation: Uncertainty and Limited Predictability

In project management literature, the realisation of projects is often characterised as dynamic complex. Dynamic complexity in these projects is reflected by the inability to fully understand a project from the start and as well as through the fact that change in projects is inevitable and desirable (Geraldi, 2008). Change is mainly visible in developments in the end product, the stakeholder constellation and the activities executed. Internal developments and external factors affect the project's success, and actor preferences may switch: interests of involved parties are not static but develop throughout a project.

Limited understanding and predictability in infrastructure projects cause diffuse causality relations and the inability to make informed decisions by managers (Vidal et al. 2011). The inability to make informed decisions - referred to as 'bounded rationality' by classic scholars (e.g. Simon, 1990) - may lead to satisficing: limited search to suitable and adequate solutions, and selecting less than the best alternative. Uncertainty leads to inadequate information about problems and a lack of insight into controlling these problems (Whitty and Maylor, 2009). Hence, one can never be fully informed on the impact certain management responses.

"Project complexity is the property of a project which makes it difficult to understand, foresee and keep under control its overall behaviour, even when given reasonably complete information about the project system (Vidal et al., 2011)"

Change in projects may lead to an improvement in projects and, therefore, may be desirable (Edelenbos et al., 2009, Koppenjan et al. 2011). Complexity in projects frequently arises not by the project's objectives but because of the broader societal objectives related to the project. Therefore, project complexity should not be reduced, but properly managed. Embracing complexity often leads to added value in a project (Kool, 2013; Bosch-Rekvelde & Sohi, 2016; Jousse & Teisman, 2020).

Complexity in Infrastructure Projects

Since the introduction of the concept of project complexity by Baccarini (1996), many authors defined and discussed project complexity. The concept is richly treated in project management literature, as project complexity is seen as a significant contributor to the failure of large construction projects (Kool, 2013; Bosch-Rekvelde & Sohi, 2016). Baccarini defines project complexity as a phenomenon caused by many varied and interrelated parts (Baccarini, 1996). Williams (1999) introduced an additional element to project complexity, namely uncertainty. Kool (2013) states that the form of uncertainty Williams (1999) refers to is the introduction of

the modern view on project complexity, focussing on the unexpected behaviour of projects. Consequently, many authors referred to project complexity as chaotic systems (Thomas and Mengel, 2008), adaptive systems (Cicmil et al., 2005), or systems with the potential to evolve (Hertogh & Westerveld, 2010; Koppenjan et al., 2011). As a result, a categorisation of project complexity in structural or detail complexity and dynamic complexity emerged. The former is often referred to as complicated, while the latter is mainly referred to as complex (Chapman, 2016). Detail complexity focuses on the number of components and interrelatedness; a project is complicated when it is composed of many parts, interconnected in intricate ways. Dynamic complexity is focussing on uncertainty and limited predictability (Hertogh & Westerveld, 2010).

Figure 2-1: Complicated versus Complex Projects (Bosch-Rekvelde & Sohi, 2016)

<i>Detail Complexity</i>	High	Complicated	Complicated and complex
	Low	Simple	Complex
		Low	High
		<i>Dynamic Complexity</i>	

In addition to the given definitions, other scholars worked on further defining project complexity. Williams (1996), Geraldi (2006), Whitty and Maylor (2009) and Kardes et al. (2013) also defined project complexity with complexity aspects related to uncertainty, interaction and dynamic and social or interactive features. A clear definition of project complexity does not make it tangible how complex an actual project is. For recognising and determining the level of project complexity of a specific project, scholars have set up project complexity frameworks - further operationalising complexity aspects in projects (e.g. Maylor (2010), Vidal et al. (2011) and Bosch-Rekvelde et al. (2011)). For example, Hertogh & Westerveld (2010) defined six, more operational forms of project complexity commonly acknowledged by practitioners involved in infrastructure project realisation (see table 2-1).

Table 2-1: Perceived Forms of Complexity in Infrastructure Projects Realisation (Hertogh & Westerveld, 2010)

Complexity	Explanation
Technical complexity	Complexity related to unproven technology (for example, innovative technology) or technological uncertainty (uncertain conditions influencing the use of technology).
Social complexity	Most important form of complexity. Social complexity is visible in the relationship between the project delivery organisation and local stakeholders and in the relationship between the project delivery organisation and their principal and parent organisations.
Financial complexity	Complexity related to difficulties in cost- and benefit prediction and calculation, different views on cost developments and different perceptions about definitions and agreements.
Legal complexity	Least important form of complexity. Complexity due to changing, non-existent or conflicting laws, extensive legislation and rules.
Organisational complexity	Important form of complexity. Involves the internal organisation (interfering work processes, finding suitable people for the job) and relation between project delivery organisation and parent or principal organisation.
Time complexity	Exceptional dimension of complexity since it is primarily related to the nature of change which affects the other five elements. Relates to long time frames and the lack of sequential processes.

Complexity aspects as defined in complexity frameworks can be coupled to either detail- or dynamic complexity. However, no specific frameworks coupling complexity aspects to detail- or dynamic complexity exists, as most project complexity aspects can manifest both as detail- and dynamic complexity (Bosch-Rekvelde & Sohi, 2016). Recognising project complexity allows for comprehensively understanding it, to consequently improve the management of complexity in projects (Kool, 2013; Chapman, 2016).

Dynamic Complexity

Complexity related to the unexpected behaviour of projects is known as dynamic complexity. In this research, the definition of Hertogh & Westerveld (2010) is used. Dynamic complexity unfolds in projects which develop over time, in terms of objectives, content and approach, and is characterised by limited understanding and predictability. Dynamic complexity has its impact on projects. Due to the potential to evolve, practitioners working on the realisation of infrastructure projects need to cope with limited understanding and predictability of stakeholders, the product and activities to be executed. The potential of an infrastructure project to evolve can be explained by several phenomena; table 2-2 explains these phenomena.

Table 2-2: Phenomena Causing the Potential to Evolve of Projects (Hertogh & Westerveld, 2010)

Phenomenon	Explanation
Small events may be of great importance	Events that seem to be small and unimportant (e.g. small changes in the project environment) may lead to big differences in the realisation and results of the project.
Importance of initial conditions	Initial conditions of the project are essential to consider as they strongly determine the progress of the project. Project organisations often stick to previously developed solutions, based on start conditions of the project.
Conflicting preferences of stakeholders	Stakeholders tend to interpret situations in line with their preferences; which is causing ambiguity due to different preferences and interpretations.
Dissatisfaction causes shifting preferences	Change events cause dissatisfaction amongst stakeholders which causes them to decide or act differently.
Changing preferences are related to external factors and internal developments	Various external factors and internal developments may cause a change in preference of involved player. External factors can be events or independent changes in context. Internal factors originate from the evaluation of the effects of past decisions.
Changes become visible in the stakeholder network, the final product and the activities of stakeholders	Changes are reflected in the constellation of stakeholders (entrance and exit of stakeholders before the operational phase; changing power distribution). Change can also become visible in the project itself (scope changes – new technical solutions) and in the activities (new management approaches).
Infrastructure projects can improve	Infrastructure projects may improve as preferences of involved players change due to external pressures and the evaluation of the actions they perform within the infrastructure project.

As indicated earlier, the internal commissioner has an important role in managing dynamic complexity in projects. The internal commissioner is positioned between different management levels and has a more boundary-setting position in projects in contrast to the project manager. Dynamic complexity in projects may cause deviations from initially defined project boundaries. If initial project boundaries are affected, the internal commissioner may be compelled to change project boundaries (Hermans et al., 2019). In finding suitable management responses in managing the project boundaries, internal commissioners are responsible for alignment of interests of different stakeholders involved.

2.2. Managing Uncertainty and Limited Predictability

2.2.1. Perception-Based Complexity and Value Orientations

The variety of complexity definitions reveals that defining project complexity is subjective (Bosch-Rekvelde & Sohi, 2016; Chapman, 2016). The level of project complexity is perceived differently by actors involved in different project phases, with different positions and experience. Actors involved in earlier project phases will identify a higher level of complexity in front-end phases (Bosch-Rekvelde & Sohi, 2016). The recognition and perceptual judgment of complexity of a particular project element depends on three factors (Kool, 2013; Bosch-Rekvelde & Sohi, 2016), namely the perceived impact of that element, one’s influence on that element, one’s experience and specific project-related contextual variables.

Different perceptions of complexity by an individual or group affects the applied management approach (Kool, 2013). Combining different perceptions on project complexity leads to a so-called ‘shared mental model’ which triggers to fit the applied management approach to the complexity of a project - and thus, leads to an enhanced management approach. Therefore, it is essential to understand, exploit and act upon different perceptions when assessing the response to project complexity (Bosch-Rekvelde & Sohi, 2016).

Public Value Interests

The way project elements are judged by an individual is affected by their interests. These interests are shaped by the position in the project and both individual and organisational values (e.g. Meynhardt (2009); Smets et al. (2014)). When looking at public organisations, this theory can be coupled with theories on public value interests. Kuitert (2019a) uncovered two groups of factors which influence the public value interest of public commissioning organisations, namely internal factors such as the maturity stage of an organisation, the character of the organisation and perception of the position of public client organisations in general. Factors related to the political and administrative system, constructions laws and regulations and developments in the building sector are external factors influencing the public value interest. Figure 2-2 shows the factors as defined by Kuitert (2019a) and Bosch-Rekvelde & Sohi, 2016).

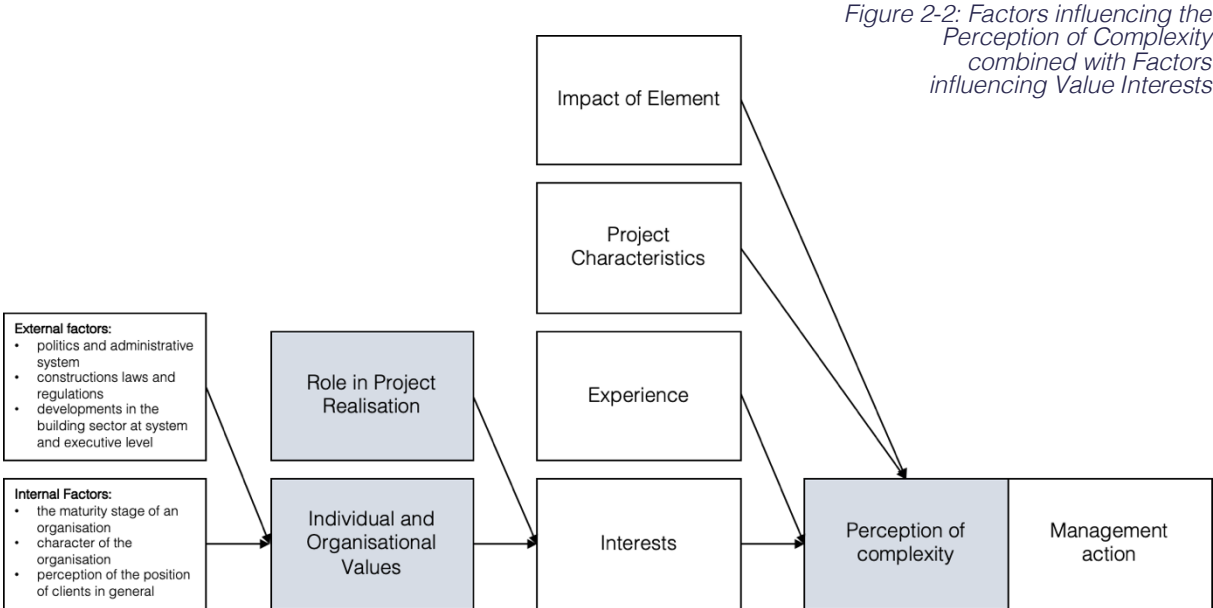


Figure 2-2: Factors influencing the Perception of Complexity combined with Factors influencing Value Interests

Public organisations have a changing perspective on values they want to ensure within their projects; a shift from traditional procedural and performance values such as legitimacy and accountability towards trust, honesty and equal collaboration in projects is taking place (Kuitert et al., 2019a). For example, collaboration with other public, private and societal parties is increasingly important for public organisations in infrastructure projects, and more collaborative modes of governance are pursued (Lenferink et al., 2013; Kuitert et al., 2019b). However, while intending to provide freedom for new ways of working, public organisations often regress to old patterns, not fulfilling their initial, more progressive ambitions. Resulting in more hierarchical-, performance- and contract management-based steering than initially desired (Klijn & Koppenjan, 2016; Kuitert et al., 2019b); safeguarding values such as lawfulness and accountability - supporting the parent organisation (Kuitert et al., 2019a).

Managing Value Trade-Offs

The internal commissioner is the main representative of the parent organisation - the intermediate between the public project organisation and the political organisation. Since value conflicts often emerge between different management levels, it is interesting to uncover how the internal commissioner experiences and respond to value trade-offs. With that, it can be investigated how such trade-offs impact the applied management approaches. Talbot in Kuitert et al. (2019a) summarises the presence of competing value orientations in organisations as follows:

“Human organisations are shaped by just two fundamental contradictions - the desire for flexibility and autonomy versus the need for control and stability; and the focus on internal concerns and needs versus responsiveness to the external environment (Talbot in Kuitert et al., 2019a, p. 267).”

Value conflicts in public commissioning organisations are mostly related to the collaboration with private parties. On the interface between the parent- and project organisations, a value trade-off manifests between the organisation’s continuity and responding to external developments, such as incidents, in projects (Kuitert et al., 2019a). In the context of this research, it is relevant to investigate how the internal commissioner experiences and responds to this intraorganisational value trade-off.

2.2.2. Management Approaches

Generally, two management approaches for managing project complexity can be found in the literature. Initially, scholars highlighted the importance of a *control approach* in managing projects. More recent studies emphasised the relevance of a *flexible or interactive approach*, anticipating on unexpected developments in the management of infrastructure projects. Following Szentes & Eriksson (2016), tensions related to combining different management approaches in projects appear at three types of organisational interfaces; namely external (public organisation versus external stakeholders), intraorganisational (public parent- versus public project organisations), and interorganisational (client and contractor).

Predict & Control

The *predict and control* approach, or the *systems approach*, is characterised by systematically approaching a project, decomposing the project into different manageable pieces of time, end

product and organisation (Bosch-Rekvelde & Sohi, 2016). A commonly seen practice in project management methodologies is dividing the project in different work-, organisational-, or cost-breakdown structures. This approach focuses on rational forecasting and rigid control of the different content-based sub-elements of a project. At the same time, rest and stability of the project environment are assumed. This approach is considered suitable for managing detail complexity in projects (Kool, 2013). In the context of this research, the 'predict element' of this approach is important to consider: based on rational predictions, a project assignment is set up. Tensions and conflicts between different management levels in the public organisation, or among stakeholders, are settled before handing over a project assignment to the executing party. Possible problems in the project realisation phase are prevented by improving the quality of the early project phases, by clearly defining different decisions to be made over the progression of different project phases (Koppenjan et al., 2012).

"The definition of a formal project assignment is considered to be an instrument to exclude uncertainties by clearly demarcating project boundaries (Koppenjan et al., 2012)."

As political support is gained in early project phases, a certain level of political distance and stability during project realisation is assumed. For the internal commissioner, applying this approach would mean undisrupted management and control of project teams as entirely predictable project progression with clearly demarcated decision gates is assumed. With that, the internal commissioner is limitedly involved in the project as aligning and managing tensions among different management levels or stakeholders during project realisation is unnecessary.

Prepare & Commit

Reality is less straightforward. A *prepare and commit* approach is in line with a more probabilistic view on projects, acknowledging the dynamic complexity of infrastructure projects. The main focus of this approach is on dealing with uncertainties; assuming projects cannot be forecasted and therefore not be controlled (Kool, 2013). The *prepare and commit* management approach is also referred to as a *hands-off approach* (Kool, 2013) or *interactive management approach* (Hertogh & Westerveld, 2010). In this approach, project realisation is not simply seen as a technological assignment in need of management. Managing the process related to the project realisation is essential (Koppenjan et al., 2012). Risks are centralised in the decision-making on these projects; risks are no longer perceived as disadvantageous side-effects in project realisation and policymaking (Leijten, 2012; Kool, 2013). This approach underlines the importance of continuous alignment among different actors involved in the project realisation and policymaking. Being open to changes in the problem definition and the project scope is necessary for adopting this approach. It is necessary to use short term predictability, iterative decision-making and variation in the applied management strategies - meaning they should specifically be suitable for the locally addressed actors and system (Edelenbos et al. 2009). Edelenbos et al. (2009) stress the relevance of flexibility and adaptivity in the applied management strategies. *Flexible* because one must cope with a myriad of different interactions, actors and unexpected consequences and effects. *Adaptive* since emergent properties characterise dynamic complexity; management strategies have to be adaptive to fit the changing properties.

“Formal projects decisions are a momentary snapshot which cannot be relied upon at all times. The distinction between the project initiation and realisation phase becomes more obscured, as formal decision-moments take place more often (Koppenjan et al., 2012).”

In this approach, project assignments should include less detailed project requirements; and could rather be seen as a process instrument, creating boundary conditions for projects. Procedural agreements on how to handle project uncertainties could be included (Koppenjan et al., 2012). In project realisation, sufficient flexibility must be given to project managers from their respective internal commissioner to enable effective production (Szentés & Eriksson, 2016). Otherwise, the internal commissioner could hinder effective decision making, resource management, and efforts to implement optimal solutions within their projects. In general, more commitment of the internal commissioner is needed during the realisation phase of projects, as formal project decisions need to be made more often, and continuous alignment between different actors is necessary (Hertogh & Westerveld, 2010; Koppenjan et al., 2012).

Combined Approach

Aaker and Mascarenhas (1984) already identified an organisational tension between flexibility- and control- management approaches. Until one decade ago, studies on managing project complexity in infrastructure projects lacked to assess the relevance of combining both approaches. Later on, studies highlighted the paradoxical nature of the tensions between these two approaches (e.g. Koppenjan, 2011; Szentés & Eriksson, 2016). Theory argues that a balancing act of the two approaches is the most effective approach in managing complex projects and, thus, is necessary for leading to meaningful project outcomes. Koppenjan et al. (2011) state that project success is at risk when not both approaches are applied. Solely implementing a *predict and control* approach would disclaim the existence of dynamic complexity in projects. Merely implementing a *prepare and commit* approach causes chaos and uncertainty due to the absence of project objectives and clear leadership - lacking clear decisions, enabling too much discussion. A certain level of control is necessary to provide direction and protect projects from externalities (Koppenjan, 2011; Bosch-Rekvelde & Sohi, 2016). A combination of both approaches is needed to ensure project success; they reinforce each other to make projects successful (Klijn & Koppenjan, 2016). Combining these strategies comes with natural tensions, often in terms of mixed management messages, processes and systems (Lewis, 2000). The internal commissioner needs to control projects and their progress to ensure that taxpayer money is spent efficiently. In contrast, uncertain and changing circumstances in projects demand a flexible approach from the internal commissioner in both product and process, ensuring desired project outcomes (Olsson, 2006). Table 2-3 summarises some of the main conflicting characteristics of the two discussed approaches as provided by Koppenjan et al. (2011).

Table 2-3: *Predict & Control versus Prepare & Commit (Koppenjan et al., 2011)*

	Predict & Control	Prepare & Commit
Task definition	Narrow for best control	Broad for best cooperation
Incentives	Work task-based	System-output based
Change	Limit as much as possible	Facilitate as much as needed
Steer	Hierarchical	Network
Information Exchange	Limited, standardised	Open, unstructured

2.3. Making Use of the Dimensions in Practice

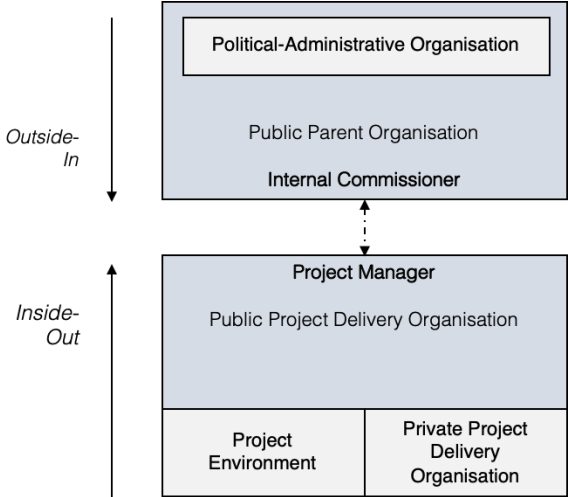
2.3.1. The Internal Commissioner: Principal to the Project Manager

The relation between a public parent and project delivery organisation contractor is referred to as a principal-agent relation. This mainly materialises as a principal-agent relation between the internal commissioner and project manager (Müller & Turner, 2005). Applying a principal-agent perspective on the relation between the internal commissioner and project manager suggests that the internal commissioner is the principal, and the public project manager is an agent for the internal commissioner (Szentés & Eriksson, 2016). Agency theories suggest goal conflicts and information asymmetry due to self-interests (Potemans et al., 2018). Agency theorists propose control-oriented management mechanisms and a relationship based on strict control instruments involving rules and procedures (Eisenhardt, 1989). Other authors suggest that project teams are mainly result-oriented and the internal commissioner more control-oriented, ensuring organisational rather than project goals - resulting in conflicts of interests (Poliakova et al., 2015; Kuitert et al., 2019a).

2.3.2. Different Perspectives on Complexity

As mentioned in table 2-2, a project’s potential to evolve relates to external factors and internal developments. Few authors writing on project complexity explicitly mention the difference between internal and external complexity. External complexity refers to complexity aspects that one has no control over - for example, laws, culture, economy, politics and crises (Kian Manaesh Rad & Sun, 2014; Chapman, 2016). In contrast, internal complexity refers to aspects that one has control over from their position (Chapman, 2016). Due to the intermediary position of the internal commissioner between strategic management levels in the public parent organisation, they have more control over managing complexities considered external by project delivery organisations. Factors impacting projects may be outside the scope of control of project managers, while the internal commissioner may be in a position to manage these (Wermer, 2018). Figure 2-3 visualises the position of both the project manager and the internal commissioner in managing inside-out developments and managing outside-in developments coming from the public parent organisation or the upper world (Wermer, 2018).

Figure 2-3: Position of the Internal Commissioner in managing Outside-in and Inside-out Developments



2.3.3. Project Realisation

Some recommendations on the management behaviour of the internal commissioner are found in the literature. These premises come from studies not explicitly focussing on the role of internal commissioners. Therefore, the validity of these premises is debatable. The internal commissioner should always steer on a clear mandate during project realisation. It is important to make strong statements, preventing ambiguity (Kool, 2013; Bosch-Rekvelde & Sohi, 2016). Furthermore, it is crucial to ensure fast and timely decision-making. Solving issues on lower-organisational levels will allow doing so (Wermer, 2018). It seems to be good practice to keep decisions on major changes in the project outside the project delivery organisation. However, the project delivery organisation should definitely play an essential role in the change processes given their specific implementation knowledge (Hertogh & Westerveld, 2010). Internal commissioners should create a sense of urgency with all the actors involved by informing other public managers in the parent organisation; they should create awareness of the project and their possible problems within the parent organisation. Openness and transparency are desired (Kool, 2013). Lastly, internal commissioners should feel responsible for managing *all interests* involved in the project (Hertogh & Westerveld, 2010; Kool, 2013). The relevance of transparency is underlined by the fact that, oftentimes, there is unclarity within the public parent organisation on how the commissioning of projects is organised over the different involved functions and departments (Hermans et al., 2019; Koops et al., 2017). Due to limited knowledge-sharing, public managers in the parent organisation may have limited awareness of complexity in projects. Therefore, clear communication is a prerequisite for organisations to be successful (Hermans et al., 2014).

2.4. Conclusion

By a literature review, the research question '*Which management approaches for managing dynamic complexity in infrastructure projects are discussed in literature?*' is answered.

Both a *predict & control* and a *prepare & commit* approach are found in the literature. The former relates to rationally approaching, decomposing and predicting projects, limiting change and applying strict control interventions. The latter relates to centralising uncertainty and responsivity to the project and its environment in its management, applying soft management mechanisms characterised by flexibility, adaptivity and specificity. For proper management of the realisation of infrastructure projects, a combination of both approaches is necessary - to avoid chaos, uncertainty and a lack of clear project objectives due to too much flexibility, as well as to avoid the inability to deal with dynamic complexity in projects due to strict control mechanisms.

Combining these strategies comes with tensions in processes and systems. From the perspective of internal commissioners involved in managing project realisation, this means balancing between imposing hierarchical control measures to limit change in these projects or focussing on network steering to facilitate change where needed. The latter involves continuous alignment with stakeholders and responsivity to changes in the project and its environment. Uncertain and changing circumstances in projects demand a flexible approach from the internal commissioner, facilitating change in both product and process to get more social value out of the project. Eventually, the internal commissioner should find suitable management responses to dynamic complexity in projects to control their progress, ensuring that taxpayer money is spent efficiently while also ensuring socially desired project outcomes are achieved. This may lead to tensions in management messages: internal commissioners should prevent ambiguity for the project organisation and should ensure fast and timely decision-making. At the same time, they should also carefully manage all interests involved.

Limited literature on commissioning in project realisation is available. So firstly, the actual responsibilities of the commissioner during project realisation should be lined out. Consequently, it can be investigated how these internal commissioners balance between the two identified management approaches. It is particularly interesting if certain patterns in specific forms of complexity and the related management responses can be uncovered. As this theoretical research indicated that personal and organisational factors such as the role in projects, experience, and objectives or values pursued influence the imposed management behaviour, empirical research can further investigate how these factors manifest from the perspective of the internal commissioner.

Tensions related to these management approaches lead to tensions between different management levels, specifically on the interface between the public parent- and project delivery organisation. A difference in value interests between the internal commissioner and project manager is found in the theoretical research. They may have different perspectives on project complexity or goals to be achieved with projects. Project teams are mainly result-oriented, and managers in the public parent organisation more control-oriented, ensuring organisational rather than project goals. It is interesting to uncover how these different goals

affect the dominated management approach from these specific actor-perspectives. Although theories have comprehensively discussed different management approaches in projects, the literature lacks to assess these theories from different actor-perspectives involved in project realisation. Is the project manager or the internal commissioner more control-oriented? Do tensions between the project manager and internal commissioner emerge from a difference in desired management approach?

In this theoretical research, the relevance of the initiation phase of projects and the related project assignment is underlined. Procedural decisions made in this phase largely influence the management behaviour of involved actors during the realisation phase. Agreements on responsibilities and stakeholder relations among parties involved in project delivery are beneficial if changes in projects were to occur. Independently from the procedural arrangements in the assignment, the general attitude of internal commissioners towards the defined project assignment may reveal the dominant management approach applied by the internal commissioner: is it seen as an inviolable agreement on defined project scope, requiring a *predict & control* approach, or is it rather seen as a momentary snapshot indicating the start of the commitment of all parties to reach the desired project goals?

Based on this literature review, a list of topics to be discussed during the empirical research has been set up; see Table 2-4.

Table 2-4: Subjects to be Investigated in the Empirical Research

	Topics
Role and Responsibility during Project Realisation	<ul style="list-style-type: none"> ▪ Responsibilities and Tasks during the realisation phase of projects ▪ Procedures related to the position of internal commissioner ▪ Relation with government administrator and project manager: operational and strategic involvement ▪ Experience: Function, work experience ▪ Maturity of the organisation and attention to the internal commissioner role
Managing Dynamic Complexity	<ul style="list-style-type: none"> ▪ Responsibilities related to managing dynamic complexity in projects ▪ Management actions during the realisation phase of projects ▪ Ways to anticipate on dynamic complexity in projects ▪ Dynamic complexity in projects <ul style="list-style-type: none"> ○ Type and impact of the event ○ Responsibilities related to managing the event ○ Imposed management interventions <ul style="list-style-type: none"> ▪ Objectives of imposed interventions ▪ Related obstacles, tensions and trade-offs ▪ Best practices concerning managing dynamic complexity in projects

Chapter 3

Empirical Research

Methodology and Key Information

Image: Project Rotterdamsebaan
Project Portfolio of Internal Commissioner M_2: Municipality of Den Haag
Source: omroepwest.nl



Introduction and Structure of the Chapter

This chapter explains key information on the conducted empirical research. Firstly, the methodology including selection criteria for respondents and organisations is described (3.1). After that, key information on the interviews (3.2) and the respondent group (3.3) is lined out.

3.1. Methodology for Empirical Research

3.1.1. Preconditions Organisations

This research is focussing on the realisation phase of infrastructure projects. In the Netherlands, public organisations are mostly responsible for the realisation of new infrastructure projects. To compare the outcomes of the interviews, organisations with a similar nature are selected for this research - namely only *fully* public organisations. Hence, municipalities, provinces, water authorities, and executing bodies of the ministry of infrastructure and water management (Rijkswaterstaat, ProRail) are included in the research. To increase the validity of the outcomes of this research and to gain insight into different ways of giving substance to the internal commissioner role, the aim is to include a wide range of organisations in this research.

3.1.2. Preconditions Respondents

Defining the role of an internal commissioner is somewhat ambiguous since different governance models are applied throughout various organisations and projects. The responsibilities of the internal commissioner may differ, and a variety of names are used for the internal commissioning role (Hermans et al., 2019). Therefore, clear selection criteria for respondents in this research are set up. A respondent in this research is:

- A. a representative of the public parent organisation in the role of internal commissioner;
- B. involved in a portfolio of projects;
- C. managing and controlling project organisations during the realisation phase of a project;
- D. intermediate between the project, the internal, and the political-administrative-organisation;
- E. involved in either dry or wet infrastructure projects.

Examples of function names found for functions meeting the preconditions are *ambtelijk opdrachtgever*, *programmamanager*, *portfoliomanager*, *realisatiemanager* or *gebiedsmanager*. For the empirical research, a wide range of public organisations is the leading criteria for selecting interviewees (see 3.1.1). Hence, internal commissioners meeting the aforementioned criteria from different public organisations are selected.

3.1.3. Semi-Structured Interviews

The empirical research consists of semi-structured interviews with practitioners meeting the conditions as given in paragraph 3.1.2. Drever (1995, p. 5) describes semi-structured interviews as a 'very flexible technique for small-scale research'. Applying this technique is suitable for doing research that involves an empirical investigation of particular phenomena within their real-life contexts. Semi-structured interviews allow for profoundly understanding particular processes or objects through the lens of specific interviewees (Verschuren &

Doorewaard, 2010). From these definitions, it can be concluded that such an approach is suitable for the empirical part of this research: similar phenomena are studied, while contextual characteristics, the applied governance model and the responsibilities of the internal commissioner may differ for each interviewee. In semi-structured interviews, the interviewer sets up a general structure by deciding in advance the ground to be covered and the main questions to be asked. The detailed structure is left to be worked out during the interview, and the person being interviewed has a fair degree of freedom in what to talk about, how much to say, and how to express it (Drever, 1995).

Based on the literature review, a list of topics for the interview is set up (see paragraph 2.4). After a general introduction on the role, function and organisation of the interviewee, an open conversation on these topics took place. The interviews ended with the possibility for the interviewee to share information on non-discussed topics considered relevant by the interviewee. Appendix A provides the used interview protocol. In some cases, organisational documents are studied for further understanding information provided during the interviews. However, no information derived from these documents is included in the research results.

3.1.4. Interview Coding

All interviews are conducted online. After conducting the interviews, the audio-visual material is transcribed and coded through a hybrid method in which both deductive concept-driven coding is applied, together with inductive coding in which new concepts are uncovered based on the interview data. Verschuren & Doorewaard (2010) refer to this process as *open coding*. Consequently, the coded interviews elements are categorised on similar themes. The latter process is known as *axial coding* (Verschuren & Doorewaard, 2010). Appendix B provides an overview of the applied qualitative coding framework.

3.1.5. Interview Data Analysis

Solely executing interviews will not provide valuable insights, as they are rather based on particularisation more than generalisation (Yin, 2013). However, this methodology allows for a comparative study. Therefore, after the interviews were coded, further analysis of the interview data took place to generalise results - aiming to derive conclusions and recommendations.

In the analysis of the interview data, focus is put on perspectives from individual interviewees on managing dynamic complexity during project realisation. Apart from the organisational and procedural conditions, the comparison of interview outcomes focusses on comparing perspectives of each interviewed individual and not separate organisations. Given the research strategy in which a wide range of organisations is pursued, the analysis did not focus on comparing interview data from different interviewees within one specific organisation.

Based on a qualitative analysis combining the outcomes of the different interviews, certain theme-based patterns are discovered - patterns related to responsibilities and management practices of the internal commissioner during the realisation phase of projects. Consequently, theme-based assertions are set up. These assertions are used to answer the formulated research questions.



















3.2. Key Information on the Interviews

For this master thesis research, a total of 24 interviews are executed. Table 3-2 shows the interviewees and their organisations. In total, 18 public organisations in The Netherlands are covered; see Table 3-1.

Table 3-1: Key Information on Interviews

No	Organisation	Function of Interviewee	Control of Project Manager?	Project phases	Type of Project Portfolio	Years in orga.	Years in position
R_1	Rijks-waterstaat	Portfoliomanager	✓	Realisation	Road infrastructure projects	11	11
R_2		Afdelingshoofd SLU	✓	Realisation-maintenance	Road infrastructure projects	12	4
R_3		Adviseur Opdrachtgeverschap			Realisation	Infrastructure projects	4
PR_1	Prorail	Manager instandhouding stations	✓	Initiation - Maintenance	Train station projects	15	5
PR_2		Manager stationsprojecten	✓	Realisation	Train stations projects	15	5
PR_3		Gebiedsmanager Noord-West	✓	Initiation-Maintenance	Rail projects	11	5
P_1	Provincie Friesland	Opgaveregisseur	✓	Initiation - Realisation	Infrastructure projects	N.A.	12
P_2	Provincie Noord-Holland	Portfoliomanager	✓	Realisation	Infrastructure projects	15	1
P_3	Provincie Utrecht	Opgavemanager	✓	Realisation	Public transport projects	7	4
P_4	Provincie Zeeland	Programma manager	✓	Realisation	Infrastructure projects	N.A.	N.A.
P_5	Provincie Zuid-Holland	Opdrachtgever Infra	✓	Realisation	Infrastructure projects	17	6
P_6		Ambtelijk opdrachtgever	✓	Realisation	Renovation Infrastructure projects	16	3
P_7		Opdrachtgever infra	✓	Realisation	Infrastructure projects	N.A.	10
M_1	Gemeente Amsterdam	Ambtelijk opdrachtgever	✓	Realisation	Bridge projects	26	1
M_2	Gemeente Den-Haag	Hoofd Opdrachtgeving		Realisation	Infrastructure and spatial development projects	6	6
M_3	Gemeente Dordrecht	Clustermanager Ruimtelijke Kwaliteit	✓	Initiation-Maintenance	Infrastructure and spatial development projects	28	5
M_4	Gemeente Leiden	Programma-manager	✓	Initiation-realisation	Infrastructure and mobility projects	External	1
M_5	Gemeente Rotterdam	Ambtelijk Opdrachtgever	✓	Realisation	Infrastructure and spatial development projects	16	1
M_6	Gemeente Utrecht	Programma directeur Centrum		Initiation-realisation	Infrastructure and spatial development projects	23	4
M_7	Gemeente Zwijndrecht	Afdelingshoofd Realisatie	✓	Realisation-maintenance	Infrastructure and spatial development projects	1	1
M_8	Vervoerregio Amsterdam	Ambtelijk opdrachtgever	✓	Realisation	Public transport projects	External	3
W_1	Waterschap Aa en Maas	Afdelingshoofd	✓	Initiation-Maintenance	Water safety projects	2	2
W_2	Hoogheemraadschap van Rijnland	Resultaatsmanager	✓	Initiation-Maintenance	Wastewater projects	20	3
W_3	Waterschap Vallei en Veluwe	Programma-manager	✓	Initiation-Maintenance	Water safety projects	18	5

Table 3-2: Organisations of the Respondent Group

Level	Organisations
National (R, PR)	 
Provinces (P)	    
Municipalities (M)	      
Partnerships (M8)	
Waterboards (W)	  

3.3. Characteristics of the Respondents

In total, 24 interviews are executed for this research. Figure 3-1 to Figure 3-3 provide further information concerning the respondent group in absolute numbers. Respondent R_3 is excluded from the respondent group analysis since this interviewee did not identify as internal commissioner. This respondent is an internal advisor for the internal commissioner at Rijkswaterstaat and therefore provided useful information for this research. Respondent M_2 and M_6 meet most criteria as defined in paragraph 3.1.2., except for criteria C: direct management and control of project managers. However, they manage other managers in this position. Due to this similarity in position, they are included in the analysis of the respondents.

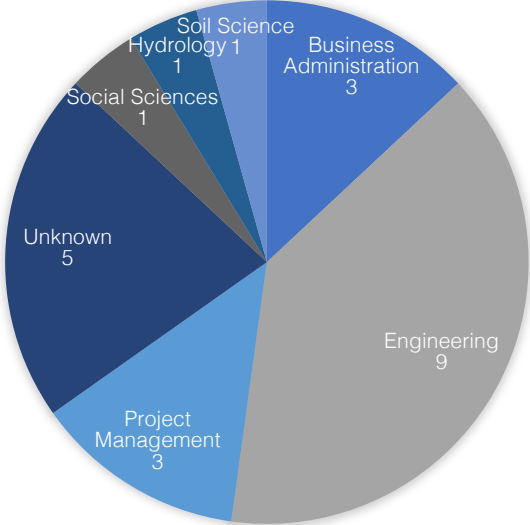


Figure 3-1: Educational background of the Respondent Group

The educational backgrounds of the respondents varied to a large extent. Not surprisingly - given that this research focuses on infrastructure projects - a significant share of the respondent group was educated in engineering, most of them civil engineering (7). Another significant share of the group is educated in either business administration or project management studies. All respondents achieved an (applied) university degree.

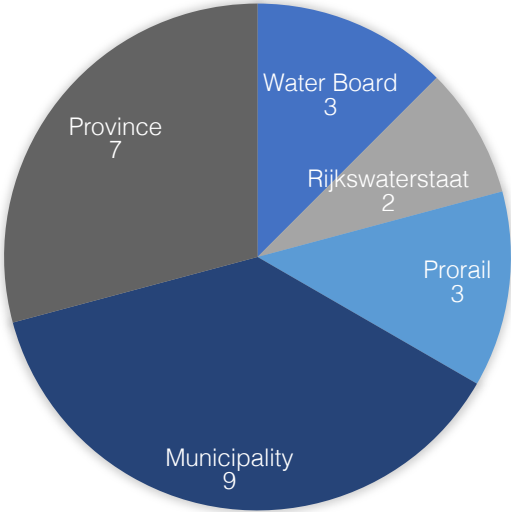


Figure 3-2: Current Organisation of the Respondent Group

Table 3-2 and Figure 3-2 show that most of the respondents work in a municipal organisation. The four biggest municipalities (in inhabitant numbers) of the Netherlands are included in the research (Rotterdam, The Hague, Utrecht and Amsterdam). Therefore, there is an overrepresentation of large municipalities in this research. However, also smaller and mediocre municipalities are included. The provinces and waterboards are randomly chosen.

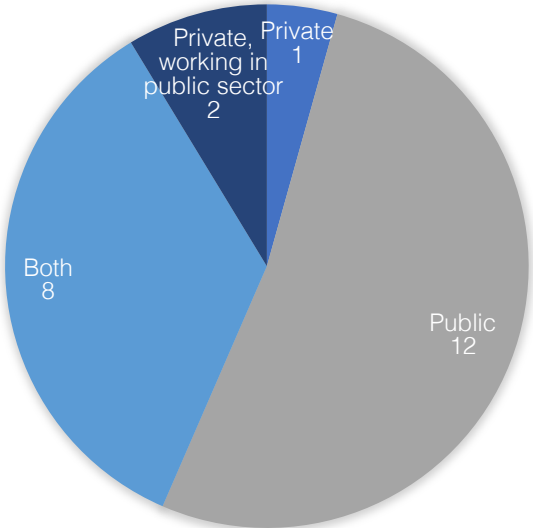


Figure 3-3: Previous Working Experience Respondent Group

Most respondents (12) have only been employed at public organisations. A significant share of this group (9) has worked for the same public organisation their entire career. Two respondents are employed at a consultancy office only working for public organisations. One respondent (W_1) has only worked at a private company until recently. The remainder of the group worked both in public and private organisations. Table 3-4 provides some additional information concerning the respondent group. Frequently mentioned positions prior to becoming internal commissioner in the corresponding organisation are project manager (~50%) or policy-related positions (~20%).

Table 3-3: Average Employment Duration of Respondent Group

Average time employed at the current public organisation	15 years
Average time employed at the current position of internal commissioner	5 years

The internal commissioning role may be allocated to team managers of project-related departments: respondents W_1, M_3, G_7, P_1, R_2 and PR_2 were internal commissioner while they also held the role of manager of a specific department.

Chapter 4

Research Results

Tasks and Responsibilities allocated to the Internal Commissioning Role

Image: Project Amsteltram
Project Portfolio of Internal Commissioner M_8: Vervoerregio Amsterdam
Source: amstelveenz.nl



Introduction and Structure of the Chapter

For answering the research questions as defined for this research, 24 practitioners are interviewed. Both chapter 4 and 5 show the results of the analysis of the data derived from these interviews. This chapter includes the examination of the responsibilities allocated to internal commissioners involved in the realisation phase of infrastructure projects. The internal commissioner is an intermediary manager between different organisational units. During the empirical research, three different organisational interfaces in which the internal commissioner has an intermediary position are distinguished. Due to the different nature of these organisational units, and for the understandability of the research outcomes, this chapter's structure is based on these three organisational interfaces, namely: the interface with the internal organisation (4.1), the interface with project organisations (4.2) and the interface with the political-administrative organisation (4.3). Whilst discussing the interface with the internal organisation, relevant organisational and procedural arrangements are further discussed. In practice, the internal commissioner balances and interacts between these different interfaces. Although discussed individually, these different interfaces cannot be seen distinctively; the conclusion of this chapter further elaborates this.

4.1. Interface with the Internal Organisation

From the perspective of project organisations, the internal commissioner is representing the parent organisation. This chapter starts with providing information on the internal commissioner's interaction with its internal organisation, the public parent organisation.

Coordinating internal processes - The internal commissioners bear responsibility for managing internal stakeholders in relation to projects. Generally, internal commissioners are responsible for aligning project interests with management layers higher up in their organisation. No patterns in the involvement of either internal commissioners or project managers in aligning the project interests with interest and resources of other operational departments of the organisation is uncovered; it was frequently heard that both the project manager and internal commissioner decide in-situ how to manage alignment with other departments if needed. Nonetheless, all interviewees indicated being responsible for coordinating internal processes in the organisation and supporting the project manager in aligning project interests with relevant internal departments. Therefore, most respondents indicated to be in the position to notice discrepancies between project and parent organisation.

Respondent PR_3: *"The problem is not a lack of knowledge of project managers. The problem is that ProRail itself is a multi-headed monster. They face problems impossible to solve. Whereas for me, it is relatively easy because my network is internally oriented. Hence, I can help them further; I think this is my biggest task."*

Respondent PR_2: *"I prevent people from intervening in projects without exactly knowing what is going on. That may sound strange, but that really is my role sometimes."*

Organisations apply diverse organisational models, with different departments involved in delivering projects. Frequently mentioned are asset management, operating, juridical, procurement, control, and engineering departments. Respondents from municipalities discussed sustainability, heritage, real estate, and land allocation departments.

Managing a portfolio of projects - All respondents expressed their involvement in a portfolio consisting of several projects. As a result, respondents were responsible for aligning organisational resources and processes with respect to multiple projects. Having a large project portfolio prevents the internal commissioner from too much operational involvement in projects. Interviewees expressed the benefits of either territorially defined projects (e.g. M_6, P_2, R_2, PR_3) or portfolios with similar type of projects (e.g. W_1, W_2, W_3, M_1, M_4, P_3, PR_1, PR_2). Respondents of Rijkswaterstaat brought up a recent development in their organisation, aiming to cluster similar type of projects into the same project portfolio. The latter allows for learning between projects through exchanging best practices. Territorially defined project portfolios are beneficial for collaboration with local stakeholders.

Respondent P_7: “As internal commissioner, you have many projects. You are a connecting link. The experience gained in one project helps you with other projects.”

Respondent R_1: “I’ve had many tunnels for a while. That provides added value. If you can manage these projects simultaneously, the projects learn from each other more easily. You see the same thing happening left and right.”

Mentioned Obstacles and Best Practices

Table 4-1 shows obstacles frequently faced by commissioners during project realisation relating to interaction with the internal organisation of the internal commissioner. Obstacles A, C, D, F, G and H particularly relate to dynamic complexity emerging in projects.

Table 4-1: Obstacles in the Interaction with the Internal Organisation

	Mentioned by
A. Disagreements on project implementation – Internal disagreements on management strategies or project outcomes - materialising through tensions between (strategic and operational) different departments or managers.	11/23
B. Ambiguous project requirements - Unclear project requirements formulated by strategic departments. Standard organisational requirements do not match with the project.	7/23
C. Too much involvement of other managers – Management board of the organisation feels passed by or experiences a loss of power due to mandates assigned to the internal commissioner, resulting in discussion with these managers.	7/23
D. Limited project mandates or unclear mandating procedures - Mandating procedures are not properly embedded in the organisation. Too little mandates assigned to the internal commissioner resulting in unnecessary discussion with the management board.	5/23
E. Ambiguity in project-related responsibilities - Ambiguity on the organisation and division of project-related responsibilities in the organisation.	4/23
F. Interfering project interfaces - Ambiguity on the scope of different projects overlapping with each other. Deviations from project boundaries create new multi-project interfaces.	4/23
G. Lack of project-transcending solutions - Lack of integrality among projects as project organisations tend to solve issues individually. Causing limited implementation of project-transcending solutions and limited learning among projects.	4/23
H. Slow control systems - Timely process to update project baselines on deviations from initial boundaries, causing discrepancies between control systems and reality.	4/23
I. Ill-suited project guidelines - Too many organisational project guidelines or unsuitability of guidelines for specific projects (e.g. procedures and best practices).	3/23
J. Slow operating systems - Inability of operating departments and their respective systems to process or line up with recent project developments.	2/23

Table 4-2 includes best practices related to the interface with the internal organisation. The best practices are mentioned in interviews focussing on dynamic complexity in projects.

Table 4-2: Best Practices in Interaction with the Internal Organisation

	Total	Mentions
A. Establish a clear organisational structure and corresponding procedures - Establish a clear organisational structure at the start of a project, including corresponding procedural arrangements related to mandates, roles and work arrangements. Consistently apply the established arrangements over the progression of the project.	12	W_1, M_1, M_2, M_3, M_4, M_6, M_7, M_8, P_1, P_4, P_7, R_3
B. Invest in informal communication – Invest in informal communication with managers from different project-related departments enabling fast problem solving in case of issues or disagreements.	9	W_1, W_2, W_3, M_4, M_6, M_8, P_3, P_7, R_3
C. Learn from each other – Exchange best practices with managers involved in other projects.	4	M_7, P_3, P_7, R_2
D. Ensure unambiguous communication - Share information among all internal stakeholders to ensure unambiguous information sharing towards external stakeholders and the project organisation.	1	R_1

Table 4-3 presents recommendations derived from matching obstacles and best practices. These statements are validated in an expert session (see Appendix C).

Table 4-3: Recommendations Derived from Matching Obstacles and Best Practices

	Obstacles	Best Practices
Connect internal actors involved in the project. For internal stakeholders, this will create insight in the different project-related responsibilities established in the organisation and allows for informal communication limiting disagreements on project implementation. It is beneficial for quick problem-solving in case of issues.	A, B, E	B, C
Properly embed project-related responsibilities in the organisation, meaning a clear organisational structure including clear responsibilities and straightforward procedures are established. Ensure all involved internal stakeholders clearly understand these responsibilities and procedural arrangements.	C, D, E, I	A
Make explicit agreements on project mandates. Assigning a considerable level of project mandates to the internal commissioner allows for efficient and working procedures throughout project realisation, especially from the perspective of the project manager. Making clear arrangements on the (side) involvement of the management board is necessary to avoid possible conflicts.	C, D, E	A
Ensure clarity on project requirements internally. More importantly, guarantee unambiguous communication towards external stakeholders and the project.	A, B, I	D
Actively manage multi-project interfaces and try to find project-transcending solutions by looking whether possible developments or solutions apply to multiple projects - for efficiently aligning resources and processes to multiple projects.	F, G	B, C

4.1.1. Organisational and Procedural Arrangements

This paragraph describes interesting observations concerning organisational and procedural arrangements that relate to the role of internal commissioner.

Respondent PR_2: “You cannot control everything, so you must have procedures.”

Respondent M_2: “I’m not really into procedures; they distract you from your real responsibility. Back to simplicity gives direction to your actions.”

Respondent R_2: “Within Rijkswaterstaat, everyone whines about all the stupid procedures. If those people start working outside Rijkswaterstaat, they say: yes, that was the case, but having nothing at all is actually more annoying.”

Positioning of the Internal Commissioner

Different ways of embedding the internal commissioner role in the organisation are found. The internal commissioner’s positioning is dependent on the applied organisational model, which is different for each public organisation. The internal commissioners were either placed in a specific *functional* organisational division, a *project* department or a *commissioning* department. Both the commissioning and project-based departments were part of overarching organisational divisions but could also be separate entities. Interviewees W_2, W_3, M_5, M_8, P_1 expressed a very direct relationship with the organisation’s management board. Table 4-4 should be seen as a rough observation rather than an all-encompassing analysis.

Table 4-4: Organisational Positioning of Internal Commissioners

	Examples	Organisations
Functional or Territorial	Afdeling waterveiligheid, afvalwater, Cluster ruimtelijke kwaliteit, Regio Zuid, Bestemming Friesland, gebied Noordwest	Waterschap Aa en Maas, Hoogheemraadschap Rijnland, Waterschap Vallei en Veluwe, Gemeente Dordrecht, Gemeente Leiden, Gemeente Utrecht, Provincie Friesland, Prorail (stations and region), Rijkswaterstaat (region)
Project	Afdeling programma’s en projecten, afdeling grote projecten en onderhoud, afdeling realisatie	Rijkswaterstaat, Provincie Zeeland, Provincie Noord-Holland, Provincie Utrecht, Gemeente Zwijndrecht, Gemeente Rotterdam
Commissioning	Afdeling opdrachtgeving, afdeling ambtelijk opdrachtgevers	Provincie Zuid-Holland, Gemeente Den-Haag, Gemeente Amsterdam

Advantages of dedicating a separate department for the commissioning of projects mainly relate to the direct relation between different internal commissioners in the organisation. This direct relation allows for more informal communication, the exchanging of best practices and more integrality among projects in terms of interface management and project-transcending management strategies. If consistently applied, it creates unambiguity on the organisational structure for involved internal stakeholders, particularly the administrator and project manager. Respondent M_5 expressed the disadvantage of becoming a power block in the organisation.

The Project Initiator

In this research, organisational divisions initiating projects are referred to as the *project initiator*. Interviewees mostly referred to asset management or policy-making departments as the project-initiator. The link with these departments is organised differently throughout different organisations, depending on the applied governance structure. At both Rijkswaterstaat and ProRail, a direct and structural connection between the project organisation and asset-management departments was established. Respondents R_3, PR_1, PR_2 were representatives of asset-management departments. The respondents positioned in functional department also were closely related to asset management departments. At the Zuid-Holland, one manager for each project is assigned as *project initiator*.

In most organisations, clarity for the project manager concerning the responsible, and approachable, internal commissioner for an individual project was ensured. However, in some

cases, the involvement of multiple managers in the project organisation led to ambiguity on whom to approach for the project manager.

Respondent PR_3: *“The project manager doing a station project is controlled by the stations department, but he also has to answer to me as regional internal commissioner. It is a complicated dual role. We haven't figured out yet what works best ourselves.”*

Respondent P_2: *“You notice a discord between the internal commissioner and the initiator who is about the money. It may be quite a search for project managers: what do we discuss with whom? From time to time, policy-making comes back into the picture - If they only hear from us in case of problems, they often feel mugged.”*

Deviations

As organisations apply standard project methodologies or certified work procedures, formal deviation procedures for managing changes in scope, budget or planning are used. Contractors can impose formal project mutation forms. Consequently, these are handled by the project or parent organisation respectively. Respondent P_3 and R_3 also discussed procedures for project mutations imposed by administrators or other internal stakeholders. Project mutations are also included in formal control, reporting, and phase transition systems.

Respondent P_6: *“A delay of two weeks; that's not a deviation of scope, is it? We do consider that, as it is an administrative burden to fill in a form for every small deviation.”*

Project Mandates and Decision Making

Project mandates relate to the decision-making authority related to projects. When speaking of mandates, interviewees mostly referred to decisions one could make within a pre-defined financial range. Only respondents M_4 and M_7 expressed an absence of formal mandate procedures in their organisations. Oftentimes, mandates procedures are defined per project. In most cases, both the project manager and the internal commissioner possessed a specific financial range of mandates with respect to a project. Generally, the internal commissioner has more mandates, and with that, more decision-making authority than the project manager.

Respondent P_3: *“Just give project managers a mandate, even if they are external, otherwise you will go crazy.”*

Respondent M_3: *“Throughout the progression of a project, you get the feeling if a project manager feels comfortable making that decision; it differs per person.”*

Respondent R_1: *“The internal commissioners have an important role when decisions beyond the mandate of the project manager need to be made.”*

Mandating structures were mostly in line with the hierarchical structure of the organisations. For large and more complex projects, mandates are mostly established on higher hierarchical levels in the organisation. Next to the internal commissioner, additional managers with a larger mandate may be appointed per project; especially in the national organisations. ProRail applies a *two pair of eyes* system in which managers with similar mandates are involved in decisions.

Respondents W_2, M_2, M_5, M_8, P_2 and P_5 explicitly underlined the benefits of possessing a large range of project mandates as internal commissioner. Respondents without formal hierarchical positions mentioned discrepancies between managers with decision-

making power and managers actually involved in the project. They indicated the involvement or formal approval of the management board in project matters unnecessary as they lack substantive knowledge. Respondents frequently mentioned that classical hierarchy should no longer be the leading mechanism for controlling projects.

Respondent P_5: *“The intention is to change mandate procedures in the foreseeable future: the internal commissioner should have more financial mandates. Classical hierarchy is no longer the leading mechanism with which we control projects.”*

Respondent P_5: *“You don't make many decisions as commissioner. The 'how' is the responsibility of the project manager. When something changes in the preconditions of the project, I always have to go back to the initiator or the administrator”*

The extent to which the respondents had actual decision- power depended on assigned financial mandates and the nature of the matter to be decided on. Furthermore, the financial resources allocated to a project business case should not be affected. The latter mostly concerns the regular project budget, including risk budgets - or overarching program-related budgets in which more financial freedom to pass budgets among different projects exists. If additional financial resources are needed, the final decision-power is by definition not in the hands of the commissioner but transferred to the project-initiator or the administrator.

Respondent PR_2: *“Things can disappoint in a project - we have included a risk budget for that. However, a discussion may arise: is it a risk? Should we finance it with the risk budget or is it a changing world that forces the financier to show his wallet?”*

No procedures regarding decision-making on changes in projects, not relating to budgets are discussed. This is probably due to limited examples of significant changes in terms of scope, planning or quality of projects for which no additional financial resources are needed. Depending on the nature of the development, the extent to which extra resources are needed and established organisational procedures, additional political support might be necessary.

Project Boards

Large and complex projects, or projects with many stakeholders involved are frequently governed by project boards - on different hierarchical levels. These project boards are set-up to facilitate formal decision-making on project-related issues and to align the different interests of relevant internal and external stakeholders; the internal commissioners were mostly chairing these boards. A coordinating role for the internal commissioner with respect to involving and informing members of project boards has been observed. Respondents mentioning the existence of such boards, indicated to discuss project changes in these groups (W_1, M_3, M_7, M_8, P_4, P_7, PR_1, PR_2). Interestingly, only 35% of the respondents discussed such groups or boards while interviewing them on managing dynamic complexity in projects.

Respondent M_3: *“In project boards we decide together on project matters. However, sometimes that doesn't work as you have to act in the here and now. Then I often decide.”*

4.1.2. Free-Standing Commissioners: Consciously Control Projects

During the interviews, several recent organisational transitions both at the level of the structure and processes are discussed; especially at the local organisations. These related to the attention public organisations have recently given to the internal commissioning role. Only respondent M_6 indicated a lack of attention of its organisation to his role.

Respondent M_5: *“Commissioners have been around for a long time. Yet there is serious attention for it only now: recognition for the profession and the qualities you must have.”*

Respondent W_3: *“About five years ago, the internal commissioning role was appointed to department-heads. They had 18.000 other things to do - our projects did not go well. Then management decided to appoint free-standing commissioners; that was a big step forward.”*

Respondents W_2, W_3 M_5, M_8, P_2, P_4, and M_7 highlighted recent transitions related to appointing ‘free-standing’ commissioners; meaning the role of internal commissioner is allocated to a separate function. Respondent M_1, M_2, M_4, P_5, P_6 and P_7 were placed in similar position. Hence, making a separate function for the internal commissioning role seems good practice. Respondent P_3 discussed a similar transition, but indicated the dissatisfaction of the management board due to power loss.

Respondent P_3: *“According to that model, you report directly to politics, not to management. Management thinks that is terrifying - then we don’t have a say anymore! It’s a choice they have made inherent to the model. There is really great tension there.”*

Arguments for establishing a separate function for the internal commissioner role predominantly related to a previous lack of control of projects, particularly on changes over the progression of projects. Policy departments initiating projects are no longer interested in projects in the realisation phase, as new projects are in progress. Project managers are too focussed on executing the project. Managers of departments involved in project realisation lack both time and in-depth project knowledge, especially with respect to the defined project goals. As a result, exceedances of the defined projects boundaries frequently and implicitly occurred. The latter could result into projects with largely expanded budgets and scopes. By appointing free-standing commissioners, changes in project boundaries are consciously managed. These internal commissioners can carefully manage and keep track of changes in project boundaries. Furthermore, these internal commissioners have more insight into defined project goals and are with that able to align project boundaries and project goals. Respondents P_1 and P_5 even expressed the added value of appointing a separate internal commissioner for projects where the public organisation is external project partner.

Respondent P_5: *“At the time, there was not one deviation of project boundaries, but dozens of little changes. Sometimes it was almost impossible to trace them properly.”*

4.2. Interface with the Project Organisation

This paragraph describes observations concerning the interaction of the internal commissioners with project organisations.

Defining project assignment and carrying out formal project control - Most interviewees explicitly mentioned being responsible for commissioning the assignment to the project organisation. Respondents indicating the latter are not per se involved from the start of the initiation phase of projects. 53% of the interviewees indicated defining a feasible project assignment, including a viable business case, as a core task. At ProRail and Rijkswaterstaat, defining the assignment is allocated to other managers and departments. The internal commissioner is responsible for controlling the project organisation during project realisation; inspecting the progress and current status of the project. All interviewees mentioned the existence of formal control systems and procedures, such as quarterly reporting and formal phase transitions. Formal control departments in the parent organisation mostly supported the internal commissioner in project control. Next to formal control systems, 91% of the interviewed internal commissioners structurally organised meetings with their project managers. Depending on the respondent's portfolio size, and the size, complexity and political sensitivity of the project, the frequency of these meetings differed from more than once per week to monthly. Most respondents greatly valued informal or ad hoc meetings with project managers.

Respondent P_1: "I start with defining project boundaries and then I monitor them. What are the boundaries? These are about scope, planning and budget. My role is to ensure everything runs smoothly - the administrative accountability, the partnerships, the approaching of stakeholders and intervening where necessary."

Respondent P_5: "So I am mainly there to monitor the boundaries: are we still on track? Should we come into action? Do we need additional agreements with stakeholders?"

Assigning capacity - Usually, the internal commissioner is not responsible for assigning personnel to the project organisations. However, the interviewees indicated to have much influence on selecting a project manager for a project - as they have clear insight into the required competences and skills. A third of the respondents were involved in ensuring sufficient capacity is assigned to the project organisation, among which the participants at ProRail and Rijkswaterstaat; they were closely collaborating with functional managers responsible for capacity management. Respondent P_5 explicitly mentioned that the project commissioner should not be the manager of people as they are responsible for the project to be carried out.

Accompanying the project manager in project implementation - The internal commissioner is a principal to the project manager with more project mandates (see paragraph 4.1). Given this authority, and their involvement in defining the project assignment, the internal commissioners may be closely involved in project implementation. The extent of involvement in executing the project assignment largely differed among the different interviewees. Some respondents were only closely involved in case initial project boundaries are affected, whereas others indicated to be as closely involved as possible to support the project manager. Ten interviewees clearly expressed to collaborate with the project manager. Ten interviewees underlined the importance of not being too involved in project execution; four were mentioning both. From practice, significant differences are uncovered, even among respondents explicitly

expressing the relevance of limited involvement. Remarkably, only interviewees at ProRail clearly expressed no involvement in operational project activities.

Respondent M_5: “I shouldn’t take the position of the project manager, but if there are problems and the project manager has insufficient power to act to resolve the matter, then I have to go in-depth and try to solve it from my position. However, I have to distance myself early - the project manager must focus on the project and act within the boundaries that have been established. I have to stay alert to what developments there are.”

Respondent PR_3: “Every project manager meets their own limits; on a personal-, mandate- or competence-level; every type of help is okay.”

Respondent P_5: “Being internal commissioner is a balancing act. Sometimes you are a sparring partner for things for which the project leader is primarily responsible. But I am not there for technology, tendering methods and so on. Those responsibilities lie on the side of the professionals - the project manager and its project team.”

Respondent P_6: “I try not to be involved too substantively in the project. However, it is impossible not to know anything about content as you write the project assignment.”

Mentioned Obstacles and Best Practices

The interviewed internal commissioners experienced diverse obstacles in the interaction with the project organisations. Table 4-5 provides an overview of the discussed obstacles and the number of interviewees mentioning the specific obstacle. Obstacles A, B and F particularly relate to dynamic complexity emerging in projects.

Table 4-5: Obstacles in the Interaction with Project Organisations

	Mentions
A. Being uninformed on project developments - Uninformed on recent developments in projects, resulting in the confrontation with accomplished facts, the inability to make informed decisions, and the inability to communicate consequences to other stakeholders.	12/23
B. Different perspectives on management approach - Project manager has contrasting viewpoints on managing certain project elements due to different interests or insights.	10/23
C. Limited capacity – Problems in appointing capacity to the project organisation due to limited personnel availability with the right competencies or fast turnover.	8/23
D. Flawed project control in project organisations – Inaccurate or uncontrolled financial, risk, or document management in projects organisations, causing flawed reporting.	6/23
E. Unprofessional project manager or project team members – Project manager or project team fails to execute their tasks or show unprofessional or neglectful behaviour.	5/23
F. Conflict of interest with external stakeholders - Different interests of external stakeholders (environmental and administrative) on project issues.	5/23
G. Ambiguity in project-related responsibilities – Unclear division of tasks or responsibilities between the project manager and commissioner, causing undesired interference.	5/23
H. Limited organisational alignment of external interim managers – External interim managers in the project organisation lack insight in the parent organisation’s goals or procedures or lack political sensibility.	3/23

Table 4-6 provides an overview of the mentioned best practices related to the interaction with the project organisation and the number of interviewees mentioning the specific best practice.

Table 4-6: Best Practices in the Interaction with Project Organisations

	Total	Mentions
A. Communicate frequently with the project manager - Communicate frequently with the project manager - to stay up to date on the progress and recent developments in projects and to prevent being confronted with accomplished facts.	13	W_1, M_1, M_3, M_4, M_5, M_7, M_8, P_1, P_3, P_5, P_7, R_3, PR_3
B. Respect the position of the project manager - Do not impose management interventions when projects stay within their boundaries. Do not hold the project manager accountable for managing the objectives as defined in the project assignment.	10	W_2, M_1, M_2, M_3, M_4, M_5, M_7, M_8, P_5, P_7
C. Invest in a relationship of trust - Be a reliable and ensure a mutual relationship of trust with the project team members, and the project manager in specific.	8	M_1, M_3, M_4, M_7, M_8, P_7, R_1, R_3
D. Use explicit communication - Be explicit in the communication with the project manager and use comprehensible explanations for applied management interventions and underlying trade-offs. Explain critical success factors.	8	W_1, W_2, M_2, M_5, M_8, P_2, P_6, P_7
E. Cooperatively find management solutions - Listen to the project organisation and avoid hierarchical steering: involve the project manager in important decisions and cooperatively find management solutions.	7	W_2, M_1, M_4, P_1, P_2, P_3, PR_2
F. Apply situational leadership - Adapt leadership style to the seniority and competences of project manager and project team members.	6	W_3, M_3, M_5, M_7, P_5, P_7
G. Understand project complexity - Know risk areas in the project and understand the project's content on headlines.	5	M_1, P_1, P_2, P_5, P_6
H. Invest in a good relation with the contractor - Invest in a good relation with managers in the parent organisation of the contractor.	2	P_3, R_1

Table 4-7 presents recommendations derived from matching obstacles and best practices. These statements are validated in an expert session (see Appendix C).

Table 4-7: Recommendations Derived from Matching Obstacles and Best Practices

	Obstacles	Best Practices
Avoid hierarchical steering, but involve the project manager in important decisions and cooperatively find management solutions through explicit communication supported by trust. Understanding complexities in the project helps to anticipate impactful developments and allows for timely support of the project manager.	A, B	A, B, C, E, G
Respect the position of the project manager during the realisation phase of projects. This involves not interfering in case projects stay within their boundaries or adjustment of the latter is unnecessary, and not holding the project manager accountable for managing project boundaries. To prevent ambiguity in actual responsibilities and enable respecting one another's position, it is important to explicitly delineate a division tasks and responsibilities at the start of a project, and clearly communicate on the related expectations throughout the progression of projects, especially for responding to specific issues or developments.	A, B, G, H	B, D, E, F
More involvement of the internal commissioner in capacity management might be beneficial, as discussed obstacles relate to the desired competences of the project organisation and the project manager specifically.	D, E, H	A, F
Professional behaviour of the commissioner materialises through the capability to apply situational leadership complying with competences and skills of managers in both the project and parent organisation.	B, D	F
Invest in a good relationship with same-level managers of the contractor and external stakeholders before conflicts arise in projects.	F	H

4.3. Interface with the Political-Administrative Organisation

This paragraph elaborates on the interaction of the internal commissioners with the political-administrative organisation, the actors accountable for the realisation of the project on a socio-political level.

Coordinating internal processes: administrative organisation - All respondents of the waterboards, provinces, and municipalities are in an intermediary position between the project and government administrators. Differences related to the involvement of the project manager or commissioner in the communication with the administrators: ~40% of the respondents of the local organisations explicitly stated to not always be involved in project-related communication with the government administrator. Contrarily, respondent P_3 and P_7 stated that project managers directly communicating with the administrator are a serious problem.

Respondent P_7: *“The internal commissioner is the link to the government-administrator. If others find their way to the administrator, he will go crazy.”*

Respondent R_3: *“We often think we can protect the minister by hiding problems - eventually this will only cause more trouble. Exposing your problems in a timely matter is less problematic for her than putting a knife to her throat to make her sign.”*

Respondent P_1: *“I don't keep administrators out of the wind; I keep them in the wind.”*

Most respondents from the local organisations indicated to communicate with administrators structurally. Other respondents only speak administrators if necessary. The frequency of communication with administrators mostly depended on the size and political sensitivity of projects. Communication with administrators was often intertwined with communication between the administrators and the organisation's managing board. None of the respondents of Rijkswaterstaat and ProRail indicated to be involved in communication with administrators; managers on higher hierarchical levels were involved in interacting with administrators. All organisations used formal reporting systems for informing administrators and politicians on the status and progress of projects.

Coordinating external processes: administrative stakeholders - Most internal commissioners expressed a supportive role concerning coordination with external stakeholders. For projects with more *administrative* stakeholders involved, internal commissioners were involved in administrative steering groups for deciding on project matters with these stakeholders. At the national organisations, specific regionally-based managers are appointed to align project interests with the interests of external stakeholders.

Respondent R_3: *“First you try to solve issues through stakeholder management in the project, if it doesn't work; then it has to be solved on a different management level.”*

Mentioned Obstacles and Best Practices

The interviewed internal commissioners mentioned diverse obstacles and best practices related to interaction with the political-administrative organisation. All mentioned obstacles and best practices relate to situations where ‘*dynamic complexity*’ in projects required deviations from project boundaries as defined in project-related policies.

Table 4-8: Obstacles in the Interaction with the Political-Administrative Organisation

	Mentions
A. Political disagreements - Political tensions or conflicts related to project implementation, specifically to adjustments of project boundaries.	8/23
B. Changing political or administrative environment - Change of course or political colour of the administrative environment, resulting in the possibility of additional project requirements or a decline in support for previously defined projects, especially during plan elaboration.	8/23
C. Lack of support - Lack of support for adjustments in project boundaries. Unwillingness to provide additional resources. Limited acceptance of unfeasibility of initial project plans.	5/23
D. Political or administrative pressure - Too much political or administrative involvement on operational matters (possibly resulting in wrong project estimations).	5/23
E. Inadequate communication - Flawed relation with government administrator causing inadequate or dysfunctional communication.	4/23
F. Administrative disagreements - Different administrators with different interests related to the project, resulting in disagreements related to project implementation.	3/23

Next to obstacles mentioned in Table 4-8, the interviewees mentioned best practices related to the relation with the political-administrative organisation; see Table 4-9.

Table 4-9: Best Practices in the Interaction with the Political-Administrative Organisation

	Total	Mentions
A. Develop political sensitivity - Develop a feeling of political sensitivity to strategically communicate with the administrator and politicians in the project's best interest.	9	M_2, M_3, M_5, M_6, M_7, P_1, P_3, P_4, P_7
B. Communicate in a timely matter - Communicate in a timely matter with administrators on project developments, ensuring the involved administrators can take responsibility and are not confronted with accomplished facts (possibly having political consequences).	8	W_1, M_2, M_3, P_1, P_2, P_4, P_7, R_3
C. Invest in a relationship of trust - Ensure a mutual relationship of trust with the government administrators involved in project realisation.	6	M_3, M_6, M_7, P_3, P_4, P_7
D. Present alternatives - Present different solution alternatives on project-related decisions, including consequences and impossibilities to allow for administrators and politicians to make informed decisions.	4	M_2, M_5, M_7, P_1
E. Support administrators in political decision-making - Think along in possible compromise solutions in which different political interests are brought together.	2	M_5, P_4

Table 4-10 presents recommendations derived from matching obstacles and best practices. These statements are validated in an expert session (see Appendix C).

Table 4-10: Recommendations Derived from Matching Obstacles and Best Practices

	Obstacles	Best Practices
Commit to understanding the political-administrative context of projects and identify and understand key actors in the political arena devoted to specific project-related matters. This allows for strategic and customized communication strategies towards administrators and other actors in the political-administrative organisation and allows to explain the political context of the project to the project organisation.	A, B, C, D, E	A, D, E
Assist the involved administrators in project-related decision-making, as administrators have less operational knowledge. Present alternatives in which project-related consequences are carefully lined out. Always be clear and honest about the possibilities and downsides of the presented alternatives, particularly on	C, F	A, B, D, E

an operational project-level. Do not identify with one specific solution, but let politicians and administrators make political choices.		
Establish relationships of trust with administrators involved in project realisation and show understanding of the political context to administrators, especially if new administrators (with different viewpoints) enter office. Projects have long time spans, and, therefore, the latter is unavoidable for most projects.	B, D, E	B, C, E
Timely communication with administrators allows for early detection of political and administrative tensions or signs of insufficient support for decisions. Commitment to informing administrators, anticipating future issues allows doing so. In turn, timely and fair communication allows for the administrator to take (political) responsibility if needed. Hence, never hide important information for the administrators.	A, C, E	B, C

4.4. Conclusion

Responsibilities allocated to internal commissioners involved in project realisation are further conceptualised for answering research question 2: *‘Which responsibilities in infrastructure project realisation are allocated to public managers in the role of internal commissioner?’*. Whilst analysing the responsibilities allocated to internal commissioners, recommendations are derived for answering research question 4: *‘What recommendations for managing dynamic complexity in project realisation can be derived for internal commissioners?’*.

Core Responsibilities

After commissioning a project assignment to the project organisation, the internal commissioner’s core responsibility is controlling project organisations - inspecting the current status and progress of the project. Due to their assigned project mandates, these commissioners are involved in important project decisions. An internal commissioner has an intermediary position in a multi-actor environment; between the organisation’s project organisation and strategic management levels and project-related departments. Therefrom, another responsibility for the commissioner is coordinating internal processes: facilitating information sharing, alignment and decision-making between the project and the aforementioned entities. At the local organisations (provinces, water boards, municipalities) the role also entails being the intermediary between the project manager and the involved government administrators socio-politically accountable for the project. Table 4-11 introduces some frequently mentioned management recommendations important for giving substance to these responsibilities. The abundance of mentions on both *trust* and *transparent communication* in the empirical research was striking.

Table 4-11: Management Recommendations for the Internal Commissioner

Communicate timely and transparently

Timely and transparent communication with the project manager and internal stakeholders ensures early detection of political, administrative or internal tensions or conflicts. With that, it allows for administrators to take political responsibility if needed. Transparent communication in project-related decision making involves presenting different alternatives in which project consequences are carefully lined out. Developing political sensitivity and understanding project complexity contributes to effective communication.

Invest in mutual trust relationships

Mutual trust relationships with project managers, administrators and other internal stakeholders allow for informal and comprehensive information sharing, enabling equal collaboration and fast problem-solving or decision-making. Projects have long time spans and long-term collaboration with certain actors is unavoidable. Next to that, investing in good relationships with same-level managers of both the contractor and external stakeholders’ organisations may be helpful for solving possible future conflicts in project realisation.

Differences in Local and National Organisations

Although differences exist between larger and smaller public organisations, overall findings are similar. Notable differences between Rijkswaterstaat and ProRail, organisations involved in national infrastructure developments, and the local organisations (municipalities, water boards, provinces) related to the responsibility for informing administrators on project matters.

Many additional managers, on higher hierarchical levels, are involved in interacting with administrators. Governance structures of the national organisations generally included more roles in the internal organisation. Therefrom, there was more ambiguity for the project organisation on the approachable commissioner for an individual project. In the national organisations, a clear distinction between the initiation and realisation phase exists; commissioners involved in the realisation phase were not involved in the initiation phase. The latter resulted in more focus on operational objectives; compared to commissioners in the local organisations, these managers limitedly discussed strategic project objectives (see 5.5.1).

Managing Dynamic Complexity in Projects

Stemming from its intermediary position, the internal commissioner has a significant role in managing dynamic complexity: management strategies for responding to dynamic complexity in projects need to be aligned with stakeholders owning interests or ultimate decision-power to the project. Interviewees acknowledged this significant position in managing dynamic complexity by underlining their responsibility for *managing project boundaries*. Table 4-12 contains management recommendations relevant for improved management of dynamic complexity in project realisation, derived from this chapter.

Table 4-12: Management Recommendations for the Internal Commissioner

<p>Facilitate administrative decision-making</p> <p>Enable administrators to take responsibility for important project decisions. Political or administrative tensions resulting in a lack of support for desired management strategies can be prevented by properly facilitating administrative decision-making. Presenting different operational project alternatives and not identifying with one specific solution is indicated as important by respondents of this research.</p>
<p>Ensure a clear division of tasks with project managers</p> <p>Prevent ambiguity in the division of tasks with the project manager. Due to close collaboration with the project manager, alignment on a division of tasks is needed for successful management of deviations or issues emerging throughout project realisation.</p>

Organising for Efficient Management of Projects

Although circumstances in the project or its environment require adjustment of the initially defined project boundaries, the internal commissioner may prefer to avoid adjustments in project boundaries due to time-consuming management efforts. In this research a comprehensive overview of possible obstacles faced by these managers is created. As a result, recommendations defined in this research concern related suggestions on improving the organisational conditions.

Table 4-13: Recommendation on Organisational Conditions for Public Organisations

<p>Organise a separate function for the internal commissioning role</p> <p>Establishing a separate function for internal commissioners involved in project realisation leads to more focus on responsibilities related to the commissioning role. Therefore, it will eventually contribute to better control on changes in projects in relation to strategic objectives. Establishing a separate function also contributes to developing role maturity.</p>
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Strive for more efficiency in internal working procedures

Ambiguity in the different responsibilities in the internal organisation often results in time-consuming decision-making on changes in projects. Properly embed project-related responsibilities in the organisation, meaning a clear organisational structure including clear responsibilities and straightforward procedures are established. Ensure all involved internal stakeholders clearly understand these responsibilities and procedural arrangements. Clear and efficient working procedures can be established by:

Setting up commissioning departments

Clearly defining the relationship with the project initiators (e.g. asset or policy departments)

Ensuring clarity for the project manager on the approachable commissioner

Establish clear mandate procedures

Applying uniform organisational structures and role allocation for different projects

Frequently updating formal control systems

Operational Involvement in Project Activities

Involvement in operational project activities by the internal commissioner is characterised as a balancing act in which too much involvement should be avoided at all times. Although most respondents recognised the latter, many respondents seemed very involved in projects. Participants in this research largely focussed on the interaction with the project organisation; *being uninformed by the project manager* is a frequently mentioned obstacle. The desire to stay closely involved in projects resulted from the control responsibility and the project mandates given to the internal commissioners - and the related responsibility for solving issues in projects that cannot be solved by the project manager; reinforced by the belief that project managers may not be competent enough. This resulted in a feeling of *ultimate responsibility* for the realisation of projects. Hierarchical control of these commissioners by management boards and administrators further increased the desire to stay in control to successfully deliver a project. Interestingly, many respondents previously were project managers (see paragraph 3.3.) - this possibly contributed to the inclination to be closely involved in projects.

Table 4-14: Management Recommendations for the Internal Commissioner

Respect the role of the project manager

Enable the project manager make operational decisions in case projects stay within the defined boundaries to prevent conflicts and to avoid discussions. Involvement of the commissioner in projects was clearly needed if the project manager has insufficient power to act, or lacks procedural knowledge or connections with internal or external stakeholders. Commissioners only ought to overrule the project manager if the project managers interest conflict with the organisations' interests, and cannot be solved otherwise. Close collaboration in defining management strategies is indicated as very important.

Be involved in multiple and similar type of projects

Being involved in a portfolio consisting of large number projects may prevent too much focus or unnecessary operational involvement in one individual project. A portfolio based on similar projects contributes to developing role maturity.

Discussing the Findings

This research showed the effectiveness of the internal commissioning role can be increased by giving attention to some organisational conditions. A tension appears in the optimal amount of project mandates given to these managers. Although the commissioner does not have ultimate project authority, assigning *mandates* to these managers is frequently indicated as relevant by respondents: it keeps decision-making on the operational and knowledgeable side of projects and it allows for efficient working procedures by preventing side-involvement of other managers. As the relevance of letting administrators make political decisions, and letting the project manager decide on operational decisions was often expressed, the added value of a high level of project mandates is put into question. The fact that the allocation of more mandates was often expressed from the perspective of efficient management - preventing side-involvement of other managers in the internal organisation - shows that efficient procedures are perhaps more important. At least, the provision of project mandates to the internal commissioner should be seen as an argument for efficiency and not for being authoritarian. In the end, the relationship between the commissioner and the project manager is defined as a *commissioner-commissionee* relationship and not as a hierarchical relationship.

Another discussion relates to the optimal amount of available time per project. Having a large project portfolio (in number of projects) prevents the commissioner from too much operational involvement in one project. However, it was also suggested that these commissioners should be given sufficient time to ensure better control of project changes in relation to strategic project objectives. For the size of the project portfolio, the expected level of complexity of individual projects should evidently be considered. The large number of recent organisational transitions discussed in the empirical research highlighted an increased focus of public organisations on the internal commissioning role. As internal commissioners are not the ultimate project authority and should also not interfere too much in projects, a more substantive question on the internal commissioning role emerges from this: how do they add value to the process of project realisation?

Table 4-15 Management Recommendations for the Internal Commissioner

Connect and coordinate

The internal commissioning role clearly adds value to project realisation through the connecting and coordinating responsibilities allocated to this role. Internal commissioners represent the internal organisation to the project organisation. They are in the position to improve the interaction between parent and project organisations; interaction which has been indicated as troublesome for project organisations in previous literature. Practitioners can acknowledge this by being open to face obstacles and inefficiencies in the internal organisation, mostly related to effectuating changes in project boundaries, to eventually support project managers and administrators in their role in project realisation by preventing them from having to deal with the same obstacles.

Chapter 5

Research Results

Managing Dynamic Complexity in Projects

Image: Rail Project
Project Portfolio of Internal Commissioner PR_3: ProRail
Source: twitter.com/antonrademaker



Introduction and Structure of the Chapter

The role of the internal commissioners in project realisation is defined in the previous chapter. This chapter further discusses the way internal commissioners give substance to managing dynamic complexity in practice. In the previous chapter, it is uncovered that the internal commissioner particularly comes into position in case of affected project boundaries. Firstly, the chapter shortly elaborates on examples of dynamic complexity in projects (5.1). Consequently, the concept of *managing project boundaries* is further conceptualised (5.2). Then, the discussed management approaches (*predict & control* and *prepare & commit*), as identified in the theoretical research are approached from the internal commissioner’s perspective (5.3 and 5.4). Lastly, factors influencing the internal commissioner’s management practices are discussed (5.5).

5.1. Dynamic Complexity in Project Realisation

To gather relevant data for this research, developments or events causing deviations from identified project boundaries in projects part the interviewees’ portfolios are discussed. From a practical point of view, these specific events or developments causing dynamic complexity in project are from now referred to as *developments*. Figure 5-1 provides an overview of the 105 developments introduced by the interviewees.

Each of the discussed developments can be categorised as either social, legal, technical or organisational complexity (see Table 2-1). Few examples of legal and financial complexity were provided, while social, organisational and technical complexity were often discussed. Given the focus of this research on understanding the internal commissioner *responding* to dynamic complexity, the developments are further categorised by the source of the development causing dynamic complexity in projects. Developments emerging in projects and their organisations and developments caused by or through stakeholders - both internal (stakeholders in the parent organisation) and external stakeholders.



Figure 5-1: Categorisation of Discussed Developments in Interviews

Figure 5-1 shows a relatively equal distribution of both exogenous developments, developments caused by internal stakeholders and developments originating from project organisations themselves. Fewer developments were categorised as caused by or through external stakeholders. Table 5-1 provides some hands-on examples of the discussed developments. The discussed developments are typical for infrastructure projects.

Table 5-1: Examples of Dynamic Complexity in Projects

	Examples
Exogenous	Coronacrisis, innovations, regulations (e.g. PFAS, Chroom6, bouwbesluit, bouwstoffenbesluit, speed limits), changing norms (e.g. NEN, safety)
Internal Stakeholders	Additional quality-, sustainability- or safety- requirements (e.g. bike lanes, benches, electrical charging stations, additional turns), elimination of price inflation compensation, change in the (political) course of direction, delays of other projects
External Stakeholders	Additional quality requirements, desired scope expansion, unsatisfied interest groups, limited alignment with external operators, extra damage claims from project environment, disagreement on the final design by external parties, unfit zoning plans, the bankruptcy of external financiers
Project Organisation	Unexpected soil conditions (unexploded ordnance, soil contamination, cables and ducts, remnants), contractor claims, changing tender procedures, low-quality of existing engineering works

5.2. Managing Project Boundaries

All respondents acknowledged their important position in managing project boundaries.

Respondent M_2: “A internal commissioner does two things: reporting to the administrator and acting when the project can no longer be realised within defined boundaries.”

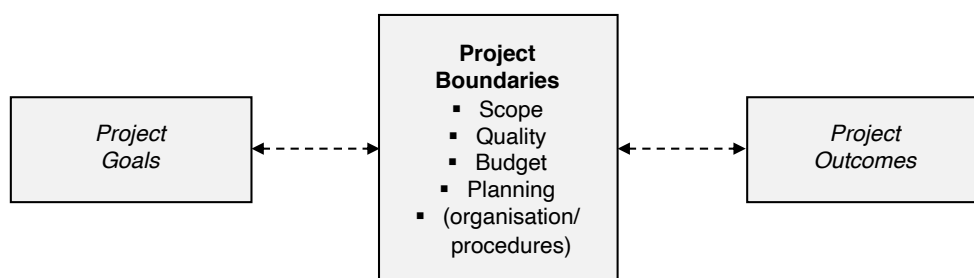
Respondent M_8: “I am positioned between the administrative, decision-making side of projects - where decisions are made about the boundaries of the project or changes thereto - and the operational side, the project organisation.”

Respondent R_1: “In case project stay within their boundaries, I wouldn't have to do anything.”

Managing Project Boundaries: Changing Goals versus Project Outcomes

From the definition of dynamic complexity in projects (see chapter 2) and a large number of examples of dynamic complexity in projects provided in the interviews, it can be concluded that dynamic complexity in projects causes the inability to realise projects within existing boundaries defined in the assignment, mostly in terms of *planning* and *budgets*. Furthermore, dynamic complexity may emerge in the project goals, mainly affecting project boundaries in terms of *scope* or *quality*. When speaking of *managing project boundaries*, both affected conditions by changing goals or projects are considered.

Figure 5-2: Definition of Project Boundaries used in this Research



Based on the interview outcomes, *managing project boundaries* is further conceptualised; see Figure 5-3. Table 5-2 shows the different related activities distracted of the interviews, and the percentage of interviewees explicitly mentioning this aspect.

Figure 5-3: Activities related to Managing Project Boundaries

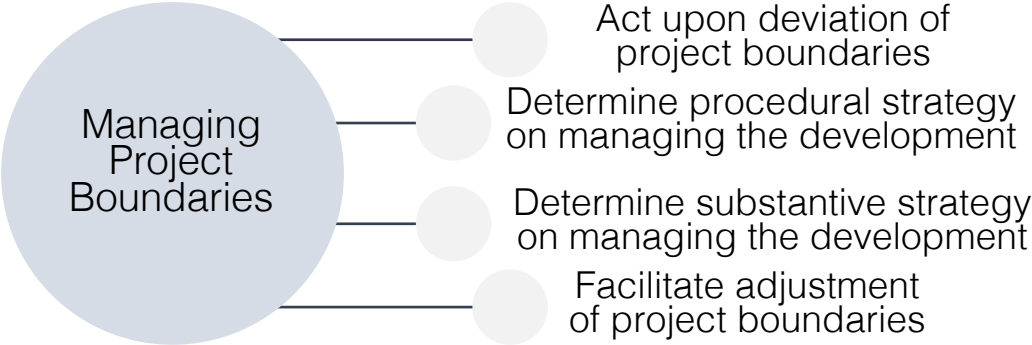


Table 5-2: Activities related to Managing Project Boundaries

	Water Boards, Municipalities, Provinces	National: ProRail and Rijkswaterstaat
Act upon deviation of project boundaries	100%	100%
A. Signal developments impacting projects boundaries	41%	60%
B. Specify the impact of the development on the project together with the project organisation	88%	40%
Determine procedural strategy for managing the development	100%	100%
A. Determine political-administrative strategy: inform or consult?	100%	20%
B. Determine internal strategy: whom to involve?	100%	100%
Determine substantive strategy for managing the development	100%	80%
A. Be roughly involved in substantive dilemmas and risk management	100%	80%
B. Support involvement of political-administrative organisation: inform or consult, present solutions and desired solutions	64%	20%
C. Support involvement of internal organisation: inform or consult, present solutions and desired solutions	100%	100%
Facilitate adjustment of the project boundaries	100%	100%
A. Secure support and resources needed for adjusting boundaries	100%	80%
B. Be the first escalation level with stakeholders and contractor in case of conflict on adjusted boundaries	65%	100%

Act Upon Deviation of Project Boundaries

All respondents indicated to come into action in the case of deviations from project boundaries. Respectively, 41% and 60% of the local and national organisations marked their role in monitoring project boundaries through signalling developments causing exceedance of the defined boundaries or through signalling opportunities of adjusting the project boundaries. These respondents acknowledged their unique position in monitoring project boundaries, while

others indicated this was a responsibility of the project organisation. Depending on the operational involvement in projects, internal commissioners are further involved in delineating the impact on the projects. As mentioned earlier, impacts on project boundaries mainly relate to changes in the iron triangle (scope, budget, planning), the risk profile or the quality of the project. Frequently discussed deviations of project boundaries are extra costs and delay. Other types of impacts, not always clearly related to project boundaries, relate to execution methods or the project organisation. In the case of non-restrictive developments, not directly affecting project boundaries on an operational level but rather affecting the project goals, a decision to further embrace or avoid the development should be taken first. A possible hazard may be underestimating the impact of deviations from project boundaries.

Respondent R_1: *“The impact of a relatively small change can be tremendous. You often underestimate that at the beginning”.*

Respondent R_3: *“You have to allow project organisation to explain effects. Otherwise it is imposed; that never actually works. Unless you want to bear the consequences.”*

Determine Procedural Strategy for Managing the Development

Both the project manager and the internal commissioner determine a procedural strategy for responding to deviations of project boundaries. As the internal commissioner is mainly responsible for coordinating internal processes, he focuses on alignment with internal stakeholders and the political-administrative organisation. Making transparent what will be discussed and informing involved actors on the rules of the game is important. In the local organisations, delineating the strategy related to informing or consulting the administrator was often mentioned. In combination with established organisational procedures, the nature of the development largely defines how to do so. The internal commissioners were largely involved in deciding on adding expertise or advisors for further defining a substantive strategy.

Determine Substantive Strategy for Managing the Development

Depending on the operational involvement in projects, interviewees were involved in determining the substantive management strategy. Descending from the defined procedural strategy, the involved actors lined out the substantive strategy. In all discussed cases, the internal commissioner was at least involved in *agreeing with* this strategy. Only respondents W_2, P_2, PR_1, PR_2 and PR_3 clearly expressed not always being involved in *defining* a substantive strategy since the project organisation and initiator can do so themselves. In determining substantive strategies, the internal commissioners frequently mentioned to actuate the project organisation in lining out possibilities, dilemmas and risks to, consequently, cooperatively define a shared vision on the substantive strategy with the project manager and other involved stakeholders. One of the responsibilities for internal commissioners is ensuring the strategy is aligned with the interests and desires of internal stakeholders and administrators. If the internal commissioner does not own ultimate decision-making power (see paragraph 4.3.1: *project mandates*), he has an actuating role towards the administrators or other decision-makers - ensuring the desired solution strategy is chosen.

Respondent W_2: *“The administrators are in charge. If they want things benefiting me, I will encourage them; I try to make the decision come quickly. I try to slow it down with counter-arguments if it's things working against me; I can influence that.”*

Respondent PR_2: “You can give one thing much attention and mention all the disadvantages of the other thing. That way, you can actuate a bit.”

Respondent M_4: “I can indicate to the administrator and the project manager: I think we should take these steps.”

Respondent R_1: “I try to enter the discussion differently. This helps in talking about other solutions.”

Frequently heard substantive strategies relate to changing the underlying project assignment by changing the project’s quality or adjusting the scope or planning. Also, discussed responses involved stopping or rescheduling the project. Furthermore, adding budgets to ensure the continuation of projects is a frequently heard strategy. If the nature of the development allows, respondents also indicated to look for tactical solution strategies in which no significant adjustments of defined assignment is necessary - these strategies oftentimes related to scope concessions among different projects, or stakeholder and environmental management. Also, actuating internal stakeholders or changing stringent organisational or procedural aspects in the underlying project assignment are seen as a substantive strategy in itself.

Respondent P_2: “It concerns consequences in terms of money, but instead of adding budget, you can choose to reduce the scope or to drop certain requirements that lead to cost- or risk-increasing aspects. We increasingly do this.”

Respondent R_2: “You can say we only have one lane instead of two. That usually never happens; it will just become expensive, but it is possible. Another possibility: decrease the quality, and with that the lifespan.”

Facilitate Adjustment of Project Boundaries

Consequently, the internal commissioner should facilitate the implementation of the substantive strategy by adjusting the project boundaries and, thus, the underlying assignment. If needed, this involves gaining additional support from internal stakeholders and politicians or administrators. If needed, the internal commissioner should secure resources to facilitate adjustment of boundaries, mostly in budget and time.

Respondent R_1: “I ensure my own organisation can accept it. Furthermore, I show much understanding to the contractor. I also have to explain the story to the administrative authority. You can have a very influential role in facilitating the solution.”

In case of developments with little decision-freedom on the substantive strategy (e.g. exogenous developments), the internal commissioner is oftentimes confronted with the need to facilitate a substantive strategy. In such cases, administrators are confronted with the urgency to provide support and resources. For this, interviewees underlined the relevance of being informed on time, informing other stakeholders and managing the project by expectation management. All interviewees discussed their role as *escalation level* if adjusted boundaries result in disagreement or conflicts with external stakeholders or contractors. If conflicts cannot be solved on the operational project level, the internal commissioner supports the project organisation by solving issues with managers of the adversary party or by facilitating conflict-solving by managers or administrators owing the required level of decision-making power.

5.3. Predict & Control

The internal commissioner carries out formal project control. In line with this, applying a strict control approach to prevent projects from exceeding the boundaries as defined in the project assignments could be expected. Evidence of applying a *predict & control* approach is further elaborated on in this paragraph. Table 5-3 provides an overview of best practices provided by the interviewees suiting to a *predict & control* approach.

Table 5-3: Best Practices related to a Predict & Control Approach

	Total	Mentions
<p>Carefully execute the initiation phase of projects – Thoroughly and carefully execute the initiation phase of projects by:</p> <ul style="list-style-type: none"> - looking for opportunities in the project scope by closely collaborating with stakeholders during the initiation phase of projects; - rounding of political or stakeholder issues in the initiation phase; - involving implementation knowledge in the initiation phase; - making detailed and realistic estimates in terms of costs and planning; - dealing with different (organisational) regulations and requirements upfront. 	14	W_3, M_3, M_4, M_5, M_6, M_7, M_8, P_2, P_5, P_6, R_3, PR_1, PR_2, PR_3
<p>Forecast risks - Ensure the project organisation implements risk management by forecasting uncertainties and risks through risk management and related risk mitigation measures.</p>	14	M_1, M_2, M_3, M_5, M_8, P_1, P_2, P_3, P_6, R_1, R_3, PR_1, PR_2, PR_3
<p>Define a feasible project assignment - Define a sound and feasible project assignment, including: a clearly demarcated project scope and a reviewed and realistic program of requirements and planning in line with policy requirements.</p>	12	W_3, M_3, M_4, M_5, M_6, M_7, M_8, P_2, P_5, P_6, R_3, PR_1
<p>Timely signal impactful developments - Timely signal impactful developments, and timely define management strategies by early collaboration with relevant internal and external stakeholders.</p>	7	M_7, M_8, P_1, P_3, P_6, P_7, R_3

Aspects in Table 5-3 mainly relate to accurately predicting the project’s progress by defining feasible project boundaries in the project assignment through carefully executing the initiation phase of projects and ensuring precise risk management. Some respondents highlighted the impactful position they have in the initiation phase compared to the realisation phase. Remarkably, only respondent P_3 explicitly mentioned the inviolability of a project assignment.

Respondent P_3: *“By accepting the assignment, I have agreed to the integral interest as defined in the project assignment. The province believes this is a project that needs to be completed. I don't always fully agree with the project – sometimes, I would do it differently. However, politicians define the scope and budget. If I say yes to that, then I do it.”*

Risk Management

During the interviews, several remarks related to the internal commissioners and their involvement in risk management in projects were made. The internal commissioner can:

- guarantee the project organisation implements risk management, and iteratively executes risk management in case of adjustments in project boundaries.
- be involved in risk management sessions to get inside project information and to help identify risks, as the internal commissioner has different viewpoints and insights on risks;
- inform internal stakeholders on the identified risks in projects;
- ensure sufficient risk budgets and assess risks on a portfolio level;

- make clear agreements on risk management with the involved external stakeholders, including agreements on the use of risk budgets and the accountability for specific risks.

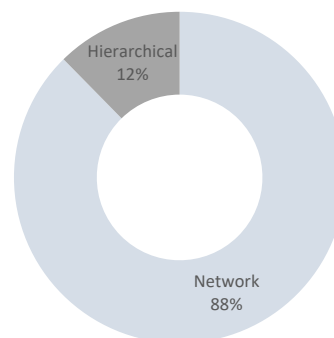
Respondent P_3: “As an internal commissioner, you see completely different risks. I divide the risks into exogenous and endogenous risks. You cannot prevent exogenous risks from happening. The latter is different for the project manager. Sometimes risks are exogenous for him and not for me.”

Hierarchical versus Network Steering

30% of the interviewees expressed to avoid hierarchical steering or *managing by shotgun*. The researcher tried to indicate whether hierarchical steering was applied by discussing both different developments affecting project boundaries, and the related management response of the internal commissioner. Only in 12% of the cases, evidence of hierarchical steering from the internal commissioner to the project manager was found (see Figure 5-4). Arguments provided for applying hierarchical steering related to:

- dissatisfied administrators or politicians on project outcomes;
- decisions under the pressure of time;
- disagreements within the project organisation;
- disagreements between the internal commissioner and the project manager.

Figure 5-4: Evidence of Hierarchical versus Network Steering



Disagreements between the commissioner and the project manager involved situations with conflicting strategic and operational goals, or situations where the internal commissioner was too involved in the project from the perspective of the project manager. While discussing directive or hierarchical steering, interviewees often mentioned the project manager’s seniority and competences: if the project manager is inexperienced, more hierarchical steering might be necessary. Generally, the internal commissioner largely collaborated with the project manager for all activities related to *managing project boundaries*. For most of the discussed dynamic complex developments, the observed management behaviour could be defined as network steering. Existing procedural arrangements also ensured relevant actors were involved in project-related decision-making.

Respondent P_3: “You try to avoid service assignments. However, you can say quite clearly: guys, I don't want to do this. However, I always try to do everything in a good relation; ‘shut up and do it’ is not my style.”

Respondent P_2: “More directive and flexible control can be combined very well. I can decide, yet that does not mean that you do not have to explain.”

Accountability and Hierarchical Steering

The higher level of accountability of the internal commissioner compared to the project manager is seen as a reason to apply hierarchical steering by some respondents (“I choose a different solution than the project manager, but I am ultimately accountable, hence, he should respect my solution”). Other respondents underlined the importance of cautiousness concerning making decisions due to accountability (“respect the position of the project manager”; “I want to come into position, but I should not decide on things that I never studied, as I can take wrong decisions”).

5.4. Prepare & Commit

As opposed to a *predict & control*-approach, a *prepare & commit* management approach is discussed in the literature. Table 5-4 shows evidence of applying such an approach.

Respondent W_1: “I sometimes say: let the initiation phase last as short as possible, then you have as little as possible progressive insights.”

Respondent P_4: “Somehow it also has something to do with motivation and commitment, it is a challenge to make something out of it. So, I don't think that everything can be arranged in advance”.

Table 5-4: Best Practices related to a Prepare & Commit Approach

	Total	Mentions
Careful decision-making - Take time to decide on the applied management response. Do not act too quickly, but firstly map out consequences.	10	W_1, W_3, M_2, M_3, M_6, P_1, P_4, P_5, R_1, R_3
Be flexible and adaptive - Be flexible and adaptive. Anticipate, and be open to changes in projects. Don't deny changes in project boundaries may occur.	8	W_1, W_3, M_5, M_8, P_1, P_2, R_1, PR_1
Act as boundary spanner - Commit to your position as trouble-shooter and boundary spanner among different stakeholders involved in project realisation.	7	M_5, M_6, P_4, P_5, P_7, R_3, PR_3
Continuously align with stakeholders - Keep listening to the wishes and desires of involved stakeholders throughout project realisation.	5	M_5, M_8, R_3, PR_1, PR_2
Leave open space in the project assignment - Acknowledge uncertainty at the start of projects by formulating open space in the project assignment. Include more room for research for the project organisation, and include more decision moments (go/no-go) on project boundaries in the project assignment.	4	M_5, P_1, P_2, P_3
Don't stay too long in the initiation phase - Fastly move forward to the realisation phase of projects as new insights only arise in project realisation.	1	W_1

Acknowledging uncertainty in projects can be done by leaving open space in the project assignment, and by showing flexibility and adaptivity in the management behaviour during project realisation. Showing commitment to acting as a boundary spanner between internal stakeholders and the project, solving possible issues emerging throughout project realisation is indicated as important. Early anticipation on affected project boundaries and possible related issues is important. For this, frequent communication with external stakeholders over the progression of projects is beneficial.

The frequency of mentions of best practices clearly relating to a *prepare & commit* approach is lower than recommendations mentioned in Table 4-10. Some respondents did not mention any aspects related to a *prepare & commit* approach. However, most respondents indirectly acknowledged the necessity of a *prepare & commit* approach during project realisation:

- The frequently underlined relevance of understanding project complexity and having a good relationship with the project manager to stay up to date on important project developments shows recognition of dynamic complexity in projects.
- The relevance of establishing a clear organisational structure and the relevance of informal communication mentioned in the context of the interface with the internal organisation were particularly stressed since they allow for efficient management of changes in projects.
- Respondents underlined the inevitability of changes taking place in project boundaries due to their long time-spans, and possible deviation causing discrepancies in the projects and their assignments. Paragraph 5.4.1 further elaborates on this by discussing the internal commissioner's position in achieving strategic project goals.

5.5. Factors Influencing the Management Behaviour

Aspects of both discussed management approaches are combined in reality. Some respondents explicitly acknowledged a tension in applying these different approaches.

"Sometimes, every little thing is seen as a reason to discuss the boundaries. Steadfastness is also needed. Steadfastness but no blinkers."

"Projects are unstable because they are projects. Projects are subject to their environment, so changes always occur. On the other hand, I also understand the need for stability - and therefore doing risk management ensuring the most stable possible planning is needed. So, when I experience issues, we do everything we can to stay within time scope and money."

Optimally managing dynamic complexity requires balancing between both identified management approaches. In the literature review, several factors possibly impacting the management behaviour of managers involved in project realisation are defined. More insight into factors impacting the internal commissioner's management behaviour, as coming out strongly during this research are further discussed in this paragraph.

5.5.1. Management Objectives

Project-Related Objectives

The applied management behaviour depends on the pursued management objectives. Figure 5-5 provides an overview of the discussed project-related management objectives and the number of interviewees mentioning the specific objective. The objectives *add social value with projects* and *reach initial project goals* are categorised as strategic objectives. *Guarantee quality in projects* and *effectively realise portfolio of projects* are more tactical objectives, combining strategic and operational aspects. The objectives *ensure stable project delivery* and *stay within initial project boundaries* are more operational objectives related to the project delivery.

Figure 5-5: Project-Related Management Objectives



Interviewees often mentioned a combination of both operational and more strategic objectives. This highlighted the internal commissioner’s intermediary position, responsible for both operational and strategic objectives. Interestingly, the objective *add social value with project* was not explicitly mentioned by respondents working in the national organisations, and by respectively 61 and 44 per cent of the respondents working in municipalities and provinces. Respondents from Rijkswaterstaat and ProRail also did not mention *reach initial project goals*. The latter could be evidence that internal commissioners on a national level are more focused on operational tasks. Respondents positioned in a department directly related to maintenance or operating departments (W_1, M_3, M_8, R_3, PR_1) all mentioned the objective *guaranteeing quality in projects*.

Strategic Project Objectives

The internal commissioner highlighted strategic objectives to ensure there would be more focus on other aspects than just realising the infrastructure assets. The goal *add social value* is mostly mentioned in the context of adjusting scope or quality in order to reach maximum social value with the project, whereas *reach initial project goals* was more frequently mentioned in the context of dynamic complexity, causing deviations in the project or their goals requiring re-alignment of these aspects; see Table 5-5.

Table 5-5: Citations explaining Strategic Project-Related Objectives

Reach initial project goals	Add social value with project
<p>“As internal commissioner, you always have to go back to what you actually aim for. What is our ambition? Is the desired social effect achieved?”</p> <p>“I should ensure whether we are still doing what we had in mind and whether changes in project boundaries match well with that intention.”</p> <p>“You know the project assignment is outdated during the construction phase. You should offer room for this in the process and pay attention to it yourself through opening the conversation. Then you can go to the finish line smoothly.”</p> <p>“There are many years between plan definition and realisation. You have to check if the plans suit the current state of affairs; that means revisiting - seeing whether the measures we have taken are sufficient or if additional measures are needed.”</p>	<p>“Theory says the internal commissioner is trying to increase the scope in order to do the more complex, to get more social return from his euros.”</p> <p>“As an internal commissioner, you should keep looking: how can I ensure that the project manager continues to discuss with me what is ultimately best for the project and the province? Boundaries should not be used so rigidly that we miss opportunities.”</p> <p>“If you purely say: this is my assignment, and I am only successful if I execute it within the time scope and you become blind to other opportunities or new developments.”</p> <p>“I am there to ensure a functional system is realised. That means security, facilities, alignment with regulations, social value - not only infrastructure assets.”</p>

If achieving strategic project goals requires adjustments in the project boundaries, or if achieving operational project goals leads to exceedance of the defined boundaries these aspects could lead to tensions. Eight interviewees explicitly mentioned the existence of such tensions, and highlighted their position in deciding on balancing between these aspects.

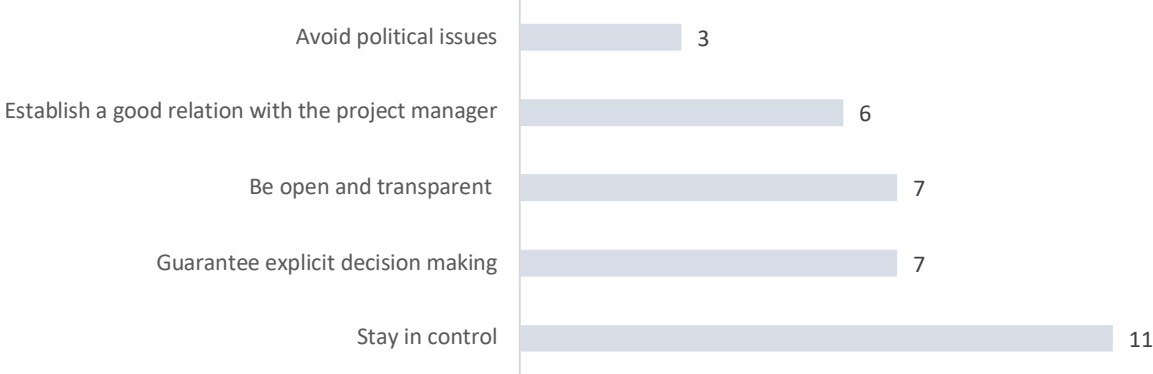
Respondent P_5: “As internal commissioner, you are responsible for different objectives: 50% for project progress, 50% for achieving strategic project goals. The project manager is 80% responsible for progress, 20% for the achievement of strategic goals. Contrarily, a policy department 80% for achieving strategic goals and 20% for project progress.”

Respondent M_6: “My role is the sense of balance between all things, so money, quality, political feasibility, pace, integrity. So, I know 70% of everything. If necessary, other people will teach me, so that I can make an - almost moral - judgment about the strategy.”

Procedural Objectives

Figure 5-6 outlines the procedural management objectives as derived from the interviews, and the number of mentions by the interviewees.

Figure 5-6: Procedural Management Objectives



For some respondents, *avoid political issues* is a reason to execute the project within boundaries established by administrators. Moreover, it was seen as a reason for close collaboration with the administrators. By *guaranteeing explicit decision-making*, respondents highlighted the relevance of clear and transparent communication and decision-making procedures, ensuring involved stakeholders know the rules of the game and understand project-related decisions. While mentioning *establish a good relation with the project manager* interviewees focused on soft values such as integrity, trust, reliability as well as transparent communication. Many interviewees expressed their desire to *stay in control*. By *staying in control* respondents focused on predicting the progress of the project, including mitigation of possible risks. Hence, the objective was also mentioned in the context of timely anticipation of changes occurring in a project or assignment, preventing the internal commissioner and other internal stakeholders from surprises or facing accomplished facts. Respondents aiming to *stay in control* expressed their desire to stay up to date on recent project developments.

Respondent M_1: “It can be compared to hiring a painter at home who delivers a higher bill and does not say why. The work has already been carried out. It gives you an unpleasant feeling. I am the ‘owner’ and I pay.”

5.5.2. Role Perception

As highlighted earlier, a discussion on the role of internal commissioners relates to the extent of operational involvement in the project. The role perception in relation to the project manager influenced the frequency and type of management interventions in the project. The project manager’s involvement in safeguarding strategic project goals is frequently discussed by respondents. Table 5-6 provides an overview of some considerations on the role implementation of both the commissioner and the project manager in project realisation.

Table 5-6: Operational Involvement Commissioner versus Strategic Involvement Project Manager

	Operational Involvement in project realisation by the internal commissioner	Responsibility for safeguarding strategic project objectives by project manager
PRO	<ul style="list-style-type: none"> ▪ Insight into strategic project goals and recent developments important for strategic management levels ▪ Insight into project-transcending interfaces ▪ Insight into the availability of resources ▪ More project mandates 	<ul style="list-style-type: none"> ▪ Insight into recent project developments ▪ Insight into project interfaces and project-wide possibilities and consequences ▪ Direct contact with the project environment and external stakeholders
CON	<ul style="list-style-type: none"> ▪ Lack of substantive or professional skills ▪ Overreactive to opportunities leading to unfeasible project assignments ▪ Hazard of too much focus on operational aspects, missing strategical developments ▪ Possible conflicts with project manager 	<ul style="list-style-type: none"> ▪ Lack of insight into strategic project goals ▪ Not open to changes in the project ▪ Hazard of too much focus on strategic goals resulting in lack of operational coordination in projects

Achievement of both operational and strategical project goals is a shared effort for both the project manager and the commissioner, where both parties ought to support each other in their core responsibilities. The latter underlines the relevance of clear communication and a good relationship. Respondents frequently mentioned the importance of respecting the project manager’s position in executing the project and keeping the project in control. Also, many respondents explicitly highlighted their responsibility for achieving strategic project goals.

Respondent PR_1: “The project manager should keep things under control. However, this should not lead to a disadvantage - missing opportunities.”

Respondent P_5: “The project manager oftentimes considers project boundaries very seriously. It is very much in the philosophy of project managers, to keep everything tightly under control. That is a good thing.”

5.5.3. Management Endeavors and Reputation

Arguments for preventing the change in project boundaries partially related to long procedures and delays or limited time. The many obstacles as mentioned in chapter 4 underline the management effort needed when effectuating changes in project boundaries. Although adjusting the project boundaries may be necessary for achieving socially desirable project outcomes, internal stakeholders may address the internal commissioner on changes in terms of delays or extra costs in projects. Therefore, the commissioner may prefer to avoid adjustments in the assignment to safeguard its reputation. Both the required management efforts and the reputation highlights that an internal commissioner mostly benefits from stable project delivery.

Respondent P_3: “Yes, and if you run out of money, you have to go back to politics with a begging bowl. And then you have to go back to the provincial council to get money. This is a very long ongoing procedure, you should really try to prevent it.”

Respondent M_3: “A change in scope means more misery, delay, extra actions. Ultimately it is always possible.”

Respondent M_4: “At the moment I am very focused on a project progress. Just ensuring production. I lack the time to keep 20 balls in the air - to also focus on strategic goals.”

Respondent R_2: “On the one hand, you want to keep up with those changes, which is often the wish of everyone at that time. However, if your project is late, everyone will have forgotten that it was the result of that one change.”

5.5.4. Type of Developments

Due to context specificity and comprehensiveness of the concept dynamic complexity, it is difficult to identify management patterns related to the type of complexity. A few patterns in the management responses to the specific forms of complexity are found.

Developments Emerging in Projects and their Organisations

Divergent type of developments in projects are discussed, each requiring different management responses. Many discussed developments related to organisational and technical complexity. In these developments, the *importance of initial conditions* and *conflicting stakeholder preferences* (see Table 2-2) were frequently discussed sources for dynamic complexity. For these developments, relatively much involvement of the respondents was uncovered during the empirical research - particularly in defining procedural strategies. Project organisations often did not involve the internal commissioner in managing developments not causing exceedances of project boundaries. As a result, a large share of the discussed developments could be categorised as *accomplished facts*, meaning they were developments leading to a certain unavoidability to facilitate changes - by adjusting the project assignment to avoid operational problems or to achieve initial project goals.

Respondent P_2: “If something emerges in a project, I am very much involved from the start: what effects will this have? When is the right time to switch? When do we involve the internal actors and the director? I have much influence in defining possible solutions.”

Exogenous Developments

Exogenous developments relate to changes in the context of the project which cannot be controlled by the internal commissioner or other internal stakeholders. In such developments, the internal commissioner’s role often comes down to facilitating change in the project.

Respondent R_2: “When it comes to regulations: you cannot change them, you cannot prevent them. Then you say to the project - deal with it. You can only see what you can do to limit the risk or costs. We adjust the scope accordingly.”

Respondent P_5: “Price inflation is an exogenous fact you deal with. It is different from something in which you have something to choose and decide.”

Respondent P_6: “Exogenous developments, as internal commissioner you cannot do anything about that.”

For this category, open information sharing in the internal organisation is often indicated important, particularly for finding project-transcending solutions that can be applied in the entire organisation.

Respondent R_2: *“Of course, you don’t let every project find a solution. In the case of Chrome6 or PFAS, our safety department writes a guideline with experts.”*

Additional Requirements Imposed by Internal or External Stakeholders

Additional requirements imposed by involved stakeholders often related to embracing technological innovations or adding elements to the scope to satisfy stakeholders or administrators. In many cases, these changes related to additional or changing quality requirements imposed by operating departments. Some interviewees expressed a general tendency to avoid imposing additional requirements on projects during project realisation. Others expressed to proactively look for ways to improve the project assignment.

Respondent M_3: *“Policy changes in a project; we actually don’t have that much in the things I do. I tend keep them out.”*

Respondent M_6: *“In the event of policy changes, I will be adamant. If you are realising a project and you start shifting your starting points. Then you are really not doing well.”*

Respondent PR_3: *“During the realisation of a project, we will not implement changes; I have one example where that happened, and you absolutely do not want it.”*

For imposing additional requirements, timing is indicated as very important. In case of far progression of the project, additional requirements have much impact, and are mostly avoided. Furthermore, interviewees frequently mentioned that the availability of financial resources is, not surprisingly, an important factor for deciding whether or not to embrace changes.

Respondent R_3: *“Changes imposed from internal stakeholders are actually easy. The only question is whether a project can still implement them. Sometimes a project is too far; additional quality or sustainability requirements can no longer be implemented.”*

Respondent R_2: *“The first question is often: can you still do it? For that, you need the project manager. As stated: it may be that the project really cannot do it as they are too far in realisation. Often you already know it yourself, and you say: it’s not possible.”*

Respondent R_1: *“In the beginning, you easily embrace change. However, there comes a moment when you say: if we are going to implement it now, that will be very expensive.”*

5.6. Conclusion

By analysing the management behaviour of internal commissioners involved in project realisation, the sub-question ‘*How do internal commissioners give substance to managing dynamic complexity during project realisation in practice?*’ is answered.

In a predictable world it is possible to translate the strategic project objectives to a demarcated project assignment at the start of a project. The role of the internal commissioner can then limit itself to monitoring whether the project organisation adheres to the agreements made. In practice, dynamic complexity in infrastructure projects results into different project implementation than initially expected. The internal commissioner has a significant role in managing dynamic complexity: management strategies need to be decided upon together with stakeholders owning decision-power to the project. Dynamic complexity in project realisation mainly causes the inability of realising projects within the defined boundaries, mostly in terms of budget and planning. However, it can also result into changing project goals affecting the project assignment.

If no solutions keeping the project within the defined conditions is desired or possible, the commissioner ought to respond to the development by establishing adjusted boundaries suiting the new situation. For finding management strategies, the respondents frequently mentioned to actuate the project organisation in lining out possibilities, dilemmas and risks to, consequently, cooperatively define a shared vision on the strategy with the project manager and other involved stakeholders. Frequently mentioned substantive strategies relate to changing the project’s quality, scope or planning or adding budgets to ensure continuation of projects. Table 5-7 shows activities related to *managing project boundaries* for the internal commissioner as derived from the empirical research.

Table 5-7: Activities related to Managing Project Boundaries

Acting upon deviation of project boundaries	Monitoring project boundaries by signalling developments requiring adjustments of the defined boundaries together with the project manager
Determining the procedural strategy	Deciding which actors to involve in defining the substantive strategy. Defining rules of the game: whom to inform or consult? When to decide?
Determining the substantive strategy	Be involved in defining the substantive management strategy for responding to the development. Agreeing with the identified management strategy. Ensuring the strategy is aligned with the interests and desires of internal stakeholders.
Facilitate adjustment of the project boundaries	Gaining support from internal stakeholders - mostly administrators, or project initiators. Securing resources to facilitate adjustment of the boundaries. Be the first escalation level in conflicts with external stakeholders and contractors.

Literature suggests that responding to dynamic complexity in projects requires balancing between a flexible and control management approach. For commissioners, a tension between these approaches appears in deciding between facilitating or limiting change. As these managers often do not own ultimate decision-power to projects, especially not in case of deviations from project boundaries defined in project policies, a tension between these approaches mainly materialises in defining the procedural management strategy: how to steer decision-making actors and the project manager to achieve desired outcomes?

Factors influencing the Management Behaviour

Factors identified in literature are further assessed from the internal commissioner's perspective to answer 'What factors influencing practitioners' management behaviour can be identified?'.

Management Objectives and Role Perception

Staying in control is the most frequently mentioned procedural management objective. This objective, combined with *avoiding political issues* is evidence that internal commissioners pursue stable project delivery. Project-related objectives included more operational objectives such as *staying within initial project boundaries* and *ensuring stable project delivery* focusing on project progress, suiting a control approach. Next to tactical management objectives such as *effectively realising project portfolios* and *guaranteeing quality in projects*, more strategic objectives such as *reaching initial project goals* and *adding social value with projects* were frequently mentioned.

Strategic objectives were mentioned in the context of responding to dynamic environments of projects: more social value can be added by changing the project boundaries, suiting to the new context of the project. Changes in projects may cause discrepancies between the strategic project goals and the actual project outcomes. The way the commissioner interprets its role in relation to the project manager largely determines to what extent they focused on either stable project progress keeping the project within the defined boundaries, or if they were open to changes in the project to more successfully achieve strategic project objectives.

Table 5-8: Management Recommendation for the Internal Commissioner

Align operational project outcomes with strategic project objectives

Both the project outcomes and the project objectives are subject to change. Therefore, these two aspects need to be aligned over the project's progression. This requires involvement of both the project manager and the commissioner, as clear insight into developments and management actions in the operational reality can only be provided by the project team. However, the project manager ought to primarily focus on executing the project assignment. Because of their insight into strategic project objectives, resulting from their close relationship with strategic management levels and their involvement in defining the project assignment, the commissioner should feel responsible for detecting and acting upon possible discrepancies between project outcomes and strategic project objectives.

Management Endeavours and Reputation

Effectuating changes in projects may be a time-consuming activity. The needed endeavors for implementing changes, which are depending on faced obstacles, influence the management behaviour of these commissioners. These obstacles mostly relate to working procedures, political or administrative tensions or flawed collaboration with the project manager. The commissioner is an intermediary manager controlled by administrators and management boards. They may fear being addressed by these actors on changes in projects. Therefore, they benefit from stable project delivery, limiting change in project boundaries where possible.

Table 5-9: Management Recommendation for the Internal Commissioner

Anticipate changes in projects

Anticipating changes unavoidable taking place in projects is indicated as important. Being flexible and adaptive, not denying but anticipating changes occurring in projects and not considering all changes in projects as the opposite of staying in control is recommended.

Type of Developments

The diverse types of complexities require different management responses. Generally, the commissioner is closely involved in responding to developments emerging in the project organisation - mainly relating to technical and organisational complexity. Exogenous developments or *accomplished facts* lead to a certain unavoidability to facilitate changes by adjusting the project boundaries to solve operational problems or ensure initial project goals are achieved. Although depending on the available budgets and project progression, for the commissioner, freedom to limit or facilitate change is primarily observed for responding to opportunities or additional requirements imposed by internal stakeholders arising over project progression. Some respondents expressed a general tendency to avoid imposing additional requirements on projects during project realisation whereas others were actively looking for ways to improve the project. For exogenous developments which affect more projects, detecting possibilities for applying project-transcending solutions is indicated as important.

Table 5-10: Management Recommendations for the Internal Commissioner

Find project-transcending solutions

Contribute to finding project-transcending solutions to ensure efficient alignment of resources and processes to multiple projects. Due to involvement in multiple projects and a close relationship with internal project departments, commissioners are in the position to identify management responses to dynamic complexity effective in multiple projects.

Support the project organisation in identifying risks

Actuate the project organisation to (iteratively) implement risk management and support the project organisation in risk management sessions to help identify risks from a different perspective. Being involved in risk management sessions helps getting inside information on project and allows to inform internal stakeholders on the identified risks in projects.

Discussing the Findings

This chapter highlighted the commissioner's position in ensuring both operational and strategic objectives with projects. The latter underlined the important position of commissioners to detect discrepancies between operational outcomes and strategic objects. When considering the need for balancing between different management approaches for optimally managing dynamic complexity in projects (see chapter 2) in different role perspectives - perhaps it can be concluded that the commissioner should ensure public organisations show responsiveness to dynamics in the project and its context by applying a flexible management approach? At the same time, the project manager can apply a control focussed management approach to ensure stable progression of the project.

An explicit distinction in a *predict & control* or *prepare & commit* approach appears in the way the project assignment is set up. Clarity for the project organisation can be ensured in the defining a clearly demarcated project assignment. Although not the main focus of this research, respondents (~60%) highlighted the relevance of a demarcated project assignment. Contrarily, only four respondents underlined the advantage of leaving open space in the project assignment. Although seemingly relevant for responding to dynamic complexity in project realisation, not much empirical evidence assenting with doing so is found. This could be evidence for the fact that providing a clear project assignment at the start of projects is considered important. The literature review suggested that clarity for the project organisations during project realisation is considered important. This research showed that careful decision-making and explicitly communicating on uncertainties is also considered beneficial.

Chapter 6

Conclusion, Discussion & Recommendations

Image: Project A16
Project Portfolio of Internal Commissioner R_3: Rijkswaterstaat
Source: duravermeer.nl



Introduction and Structure of this Chapter

This report contains an exploratory study into the internal commissioner role in Dutch public sector organisations during the realisation phase of infrastructure projects. This chapter formulates an answer to the main research question (6.1), discusses the research strategy (6.2) and ends with recommendations for further research (6.3).

6.1. Final Conclusion

“How can public managers in the internal commissioning role in Dutch public sector organisations involved in the realisation phase of infrastructure projects manage dynamic complexity in these projects?”

In a stable, predictable world, it is possible to translate the strategic project objectives to a demarcated project assignment at the start of a project. The role of the internal commissioner can then limit itself to monitoring whether the project organisation adheres to the project boundaries defined in the assignment. In reality, these managers are confronted with dynamic complexity affecting the project outcomes or the goals related to the project. For example, technical uncertainties, changing organisational conditions, new laws and regulation, or additional sustainability requirements imposed by internal actors may require adjustments of project boundaries - demarcations of the project in terms of budget, scope, quality or planning. Due to their assigned project mandates, the internal commissioners are involved in important project decisions. Therefore, they are involved in deciding between facilitating or limiting change in projects. As the internal commissioner does not own ultimate decision-power to projects - especially when project boundaries are affected - they mainly influence the management response to affected project boundaries by defining the procedural management strategy: how to steer decision-making actors and the project manager to achieve desired project outcomes? In this, an apparent tension exists between ensuring fast decision-making preventing ambiguity for internal stakeholders and the project manager, or careful decision-making, weighing all possible interests and being open to uncertainties.

A subsequent question relates to how these managers respond to dynamic complexity. Are these commissioners agents for change, or do they benefit from stable project progression? The diverse types of discussed dynamic complex developments required different management responses. Internal commissioners were mostly involved in developments affecting project boundaries. Developments oftentimes resulting in a certain unavoidability to facilitate changes in the project boundaries by the internal commissioner. Due to their involvement in multiple projects, internal commissioners play a significant role in finding project-transcending solutions in case of exogenous developments, ensuring efficient use of resources and processes in the public parent organisation. Although mainly depending on the available budgets and the progression of the project, freedom to limit or facilitate change by commissioners is primarily observed for responding to opportunities to add social value or increase the projects' quality.

When considering the abundance of obstacles these managers face - mostly related to inefficient or conflict-bringing interaction with the internal organisation or administrators - it can be assumed the internal commissioner benefits from stable project progression. Although

circumstances in the project or its environment may require adjusting the project boundaries, these managers may prefer to avoid this due to time-consuming management efforts. This research sums up ways of improving efficiency in internal working procedures. The large number of recent organisational transitions related to the commissioning role discussed in the empirical research highlighted increased attention by organisations to this role. Practitioners mostly highlighted the relevance of clear project structures and role allocation for effective management of dynamic complexity in projects.

Next to seemingly evident management recommendations such as careful decision-making, communicating transparently, investing in relationships of trust, and anticipating change, this research showed that the internal commissioner can contribute to enhanced implementation of risk management in projects due to its differing viewpoints on possible risks. Furthermore, for successful management of dynamic complexity in projects, limiting the operational involvement of internal commissioners is indicated as crucial. It prevents time-consuming interference in responsibilities that belong to the role of project manager, which has more substantive knowledge on the project. After all, the relationship between the internal commissioner and the project manager is defined by organisations as a commissioner-commissionee relationship and not a hierarchical control relationship.

The way the commissioner interprets its role in relation to the project manager largely determines to what extent these managers focus on either stable project progress keeping the project within the defined conditions or if they are open to changes to more successfully achieve strategic objectives. This research underlined the relevance for commissioners to connect actual project outcomes with strategic project objectives during project realisation as both may be subject to change over the progression of the project. When considering the need for a balance between flexibility and control to respond to dynamic complexity in projects - perhaps it can be concluded that the commissioner should ensure public organisations show responsiveness to dynamics in the project and its context by applying a *flexible* management approach, while the project manager applies a *control* focussed management approach to ensure stable project progression?

The internal commissioner is not the final project authority and should also not interfere too much in projects. From this, a discussion on the nature added value of the internal commissioning role emerges. The internal commissioner is the representative of the public parent organisation to the project organisation. Respondents in this research highlighted they are in the position to improve the interaction between the parent and project organisations. This interaction has been identified as troublesome from the perspective of project organisations in previous literature. They can primarily add value to realising projects by connecting internal stakeholders and by facing the related inefficiencies and obstacles, to eventually prevent project managers and administrators from having to deal with the same inefficiencies. The latter does not necessarily mean preventing uncertainties on project matters for the project organisation; it means explicitly communicating on uncertainties and looking for answers to these uncertainties.

6.2. Discussing the Research Strategy

Some points of discussion on the applied research strategy are identified and described below.

Different Organisational Interfaces and Roles in Project Realisation

To understand existing tensions in project realisation, addressing one organisational interface is not sufficient; as one interface is interrelated to other interfaces (Szentés & Eriksson, 2016). This research addressed the organisational interfaces from the internal commissioner's position, but did not examine other interfaces on the operational (e.g. public project manager - private project manager) and strategic side (e.g. administrators - management). The results of this research are not further supported or validated by other roles involved in project realisation. Especially concerning roles frequently collaborating with the internal commissioner, this would have been advantageous. This could have detected invalid answers or brought other aspects to the surface. Due to practical limitations, the researcher underlines that solely focussing on the role of internal commissioner has been the optimal research strategy given the research objective.

Data Gathering and Processing

Due to the interviews' long duration, the topics discussed during the final phase of the interviews might have gained less attention by the interviewer and interviewee. Furthermore, only one researcher has executed the coding process of the interviews. Coding may be sensitive to subjectivity as it relies on the researcher's perception of the data and concepts. The latter may impact the results of the research. Ideally, multiple researchers are involved in coding interview transcripts to eliminate subjectivity in the analysis.

Included Public Organisations

This research assumes a certain extent of organisational uniformity amongst different type of Dutch public sector organisations. Especially when looking at the water boards, municipalities and provinces, commonalities were uncovered. However, the research primarily focused on relatively large municipalities. For smaller municipalities, not all findings may be recognisable. Moreover, while comparing national organisations with the aforementioned organisations, significant differences in organisational aspects (organisational model, task division, involved managers) are identified. Still, the researcher thinks it has been beneficial for the research outcomes to have included respondent from a relatively broad set of organisations, especially for the cross-contamination of best practices.

Applicability of Recommendations

Due to this research's open and explorative character, the defined recommendations are at a high level of abstraction. Not for all recommendations it will be immediately evident for practitioners how to apply these recommendations in practical terms. The implementation of these recommendations is highly dependent on personal management styles, organisational cultures, customs and structures. Due to the exclusion of respondents and their respective public organisations outside of the Netherlands, the research results apply to Dutch public sector organisations. Given the specific character of these organisations, the outcomes of the research are not applicable to other organisation groups (e.g. private organisations, semi-public organisations or public organisations in other countries) without additional validation.

6.3. Recommendations for Future Research

This study's results are only a first step in a research area that could prove to be even more rewarding. Further research in the organisational side of public commissioning can be undertaken in numerous ways; several suggestions interesting for pursuing are named.

Different Organisational Contexts

Additional research could focus on the relationship between project organisations and their parent organisations in different organisational contexts. Interesting would be to investigate how public sector organisations in other countries involved in infrastructure realisation organise the interface between governmental and operational organisations. Furthermore, it would be useful to uncover how private or semi-public organisations organise the project-parent interface in project realisation. This will provide useful insight, and allows for different organisation groups to learn from each another. Similar research focussing on the interface between governmental and operational organisations can be executed in other type of projects or public domains. For example, other type of projects in the built-environment (e.g. housing, urban development).

Different Project Phases

This research focussed on the realisation phase of infrastructure projects. In this research, several implications concerning defining the project assignment in project initiation are mentioned. Additional research on optimally defining a project assignment could lead to helpful insights on how to do so while dealing with dynamic complexity in infrastructure projects. Besides, the interviewees frequently faced problems related to the progression from the realisation to the operating and maintenance phase of these projects. Research could be devoted to analysing public organisations or internal commissioners during project maintenance.

The Government Administrator and Policy-Making

This research focussed on the role of the internal commissioner. In infrastructure realisation, another important actor on the public side is the government administrator. The literature review has proven that limited knowledge on this position is available as well. Further research could focus on the position of administrators involved in infrastructure realisation. Possible interesting topics are public decision-making, the connection between policy-making and project realisation, political tensions and social-political accountability in projects.

In-Depth Research

Recommendations derived from this research are abstract. This research identified several pathways for further improving the role of internal commissioners in project realisation. More insight into materialising these recommendations can be created by further focusing on specific individual organisation groups or a specific recommendation as identified in this research.

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Appendices

Appendix A: Interview Protocol

Appendix B: Coding Frame

Appendix C: Expert Validation

Appendix A: Interview Protocol

This appendix shows the interview protocol as used during the interviews for this research. The interviewees were all practitioners working in Dutch public sector organisations. Therefore, the language of instruction – and with that, the interview protocol – is in Dutch.

Deel 1: Introductie (15 min)

- Introductie onderzoek: Afstudeeronderzoek CME, begeleid door AT Osborne en Leerstoel Publiek Opdrachtgeverschap TU Delft
- Doel onderzoek: Inzicht krijgen in de rol van intern opdrachtgevers tijdens de realisatiefase van infrastructuurprojecten; om informatie te krijgen over de omgang (doelstellingen en managementhandelingen) met project- en beleidsdynamiek.
- Duur: 1-1,5 uur
- Uw gegevens worden vertrouwelijk behandeld en komen anoniem terug in de algemene rapportage van het onderzoek. Opname van het gesprek dient voor mij om het terug te luisteren zodat uw waardevolle antwoorden niet verloren gaan.

Onderwerp	Vragen (10)
Achtergrond en Functie	<ul style="list-style-type: none"> ▪ Wat is de naam van uw functie binnen de organisatie waar u werkzaam bent? <ul style="list-style-type: none"> ○ Tot welke afdeling behoort uw functie? ○ Waarom heet deze functie zo? ▪ Hoe lang bent u werkzaam in uw huidige functie? En in deze organisatie? ▪ Kunt u kort iets vertellen over uw professionele werkervaring?
Portefeuille	<ul style="list-style-type: none"> ▪ Bij hoeveel en wat voor type projecten bent u betrokken als opdrachtgever?
Rol gedurende realisatiefase van projecten	<ul style="list-style-type: none"> ▪ Wanneer, in welke fase, start uw betrokkenheid bij projecten en wanneer eindigt het? ▪ Is uw betrokkenheid gedurende de looptijd van projecten gelijk of ervaart u verschillen? ▪ Wat zijn uw taken en verantwoordelijkheden tijdens de realisatie van infrastructuurprojecten?
Opdrachtgeverschap in de organisatie	<ul style="list-style-type: none"> ▪ Wie zijn in uw organisatie (naast het projectteam) nog meer betrokken bij deze projecten, en vanuit welke verantwoordelijkheid zijn zij betrokken? ▪ Wanneer ontmoeten jullie elkaar en wat wordt er besproken? ▪ Waar worden belangrijke besluiten genomen? <ul style="list-style-type: none"> ○ Is het project vertegenwoordigd? ○ Hoe worden deze besluiten aan projecten teruggekoppeld?

Deel 2: Dynamische Complexiteit (40-60 min)

Onderwerp	Vragen (5)
Afwijkende ontwikkelingen	<p>Vanuit projecten weten we dat er vaak sprake is van nieuwe informatie of afwijkende ontwikkelingen die mogelijk tot veranderingen in de opdracht leiden.</p> <ul style="list-style-type: none"> ▪ Hoe komt u hier mee in aanraking? Welk type ontwikkelingen? <p>Hetzelfde geldt voor ontwikkelingen in de bovenwereld; vanuit de beleidskant. Deze kunnen ook veranderingen in de opdrachten aan projecten veroorzaken (bijv. crises, nieuwe regelgeving, meer circulariteit of minder energiegebruik).</p> <ul style="list-style-type: none"> ▪ Hoe komt u hiermee in aanraking? Welk type ontwikkelingen?
Relatie moederorganisatie	<p>Veranderingen in projectopdrachten, en hiermee de relatie met de moederorganisatie, worden door projectorganisaties vaak als stressvol ervaren.</p> <ul style="list-style-type: none"> ▪ Wat zijn succesfactoren in de omgang met de projectorganisaties, in het bijzonder bij afwijkende ontwikkelingen/wijzigingen projectopdrachten?

Anticiperen	<p>Het maken van heldere procesafspraken in de voorbereidingsfase (bijv. voor uitvoeringsbesluit) van projecten kan bijdragen aan een goede omgang met veranderingen tijdens projecten.</p> <ul style="list-style-type: none"> ▪ Welk (type) afspraken helpen om te anticiperen op veranderingen die gaan ontstaan tijdens de uitvoering van het project? ▪ Wat kunt u nog meer doen om te anticiperen op eventuele veranderingen die gaan ontstaan tijdens de realisatie van projecten?
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Ik heb u gevraagd enkele concrete, impactvolle, ontwikkelingen (project- of beleidsdynamiek, gekenmerkt door onzekerheid, in projectportefeuille) uit te denken. Deze wil ik nu graag bespreken. Ik hoop dat deze gebeurtenissen een goed beeld geven van uw managementrol als intern opdrachtgever.

Per gebeurtenis/ontwikkeling (9)	
Impact	<ul style="list-style-type: none"> ▪ Welke gebeurtenis/ontwikkeling wilt u bespreken? ▪ Kunt u kort omschrijven wat de impact van deze gebeurtenis of ontwikkeling was op uw projecten en de projectorganisaties?
Rol en doelstellingen	<ul style="list-style-type: none"> ▪ In hoeverre was u verantwoordelijk voor het beheersen van deze ontwikkeling? <ul style="list-style-type: none"> ○ Was u ook beslissingsbevoegd? ○ Was u daarmee voldoende in staat de gebeurtenis te beheersen? ▪ Heeft u bij dergelijke gebeurtenissen een sterk sturende, kaderstellende rol of een meer verbindende rol? ▪ Wat zijn in het managen van deze gebeurtenis, of soortgelijke gebeurtenissen, belangrijke doelstellingen voor u als intern opdrachtgever?
Afhandeling	<ul style="list-style-type: none"> ▪ Hoe heeft u uiteindelijk gereageerd op deze gebeurtenis? Welke handelingen heeft u uitgevoerd? <ul style="list-style-type: none"> ○ Hoe kwam dit terug in het sturen van de projectorganisatie? ○ Is dit kenmerkend voor dergelijke situaties? ○ Kunt u iets zeggen over de effectiviteit van de handeling? ▪ Heeft u nog meer acties ondernomen toen u te weinig effect zag? ▪ Wat zijn obstakels die u ervaarde bij het beheersen van deze ontwikkeling? Hoe bent u hier mee omgegaan? ▪ Wat zijn de spanningsvelden die u ervaarde bij het managen van deze ontwikkeling? Hoe bent u hier mee omgegaan?

Deel 3: Afronding (5-10 min)

Onderwerp	Vragen (4)
Afsluiting	<ul style="list-style-type: none"> ▪ Eventuele concluderende vraag: kunt u kort samenvatten hoe een intern opdrachtgever professioneel omgaat met onzekerheden in projecten? ▪ Zijn er onderwerpen niet ter sprake gekomen, die u nog ter sprake wil brengen? ▪ Heeft u documentatie van de organisatie van het opdrachtgeverschap in uw organisatie? ▪ Ik wil u graag de mogelijkheid bieden de transcriptie in te zien voordat deze gebruikt wordt voor mijn rapport. Wilt u deze achteraf inzien?

Appendix B: Qualitative Coding Frame

This appendix includes the qualitative coding frame of the research. All interviews are transcribed and consequently coded with the 2nd and 1st order concepts in Atlas TI. This appendix shows the applied coding frame, and the frequency of applying these codes.

2 nd order concepts	1 st order concepts	Number of codes
Organisation	Function/Portfolio	94
	Personal/Experience	31
	Structure/Process	317
	Tasks/responsibilities general	398
	Tasks/responsibilities unforeseen developments	182
Management	Anticipation	49
	Decision-making	51
	Best-Practice	183
	Objectives	83
	Interventions/management responses	323
	Obstacles/Trade-offs	225
Experience/Maturity		127
Quotation or point of attention		207
Dynamic Complexity: specification or impact		191
Contractor/contracts		20

Appendix C: Expert Validation

In the final research phase, an expert validation in order to confirm the research outcomes took place.

Participants

The participants in the expert validation are consultants and managers from AT Osborne. A diverse group of participants, with different levels of seniority and a background in different infrastructure projects in different public organisations participated in the session. The following experts participated in the validation:

- Rudolf Rijkens
- Jelyn Stegewans
- Bastiaan Sommeling
- Gerard Scheffrahn
- Rutger Bartels
- Thomas Neijenhuis
- Peter Weevers
- Alex Miggelenbrink
- Pelle de Wit
- Eelco Sneep
- Eddy Westerveld

Set-up of the expert validation

During the expert validation, the participants were divided into three different sub-groups. During three different rounds, the participants were asked questions on the different sub-parts of the research, namely:

- Interface with the project organisation
- Interface with the political-administrative organisation
- Interface with the internal organisation

The answers of these questions for each sub-part were documented. Consequently, the subsequent group was able to provide additional answers or complement the yet documented answers. Eventually, all three groups discussed the three different sub-themes.

Questions

The following questions were discussed for each theme:

	Questions	Time per round
<i>Validation</i>	Which obstacles and best practices do you recognize from practice?	5 min
<i>Prioritise and refine recommendations</i>	What is the practical relevance / applicability of the given management recommendations? What additions would you make to these recommendations? (why does this not always happen in practice?)	25 min

Outcomes

For each theme, the mentioned obstacles and best practices were reconfirmed by the experts. Furthermore, the management recommendations derived from the interviews were validated. A list of suggestions to improve the recommendations in terms of content and language is given. The input during the expert validation is considered by the researcher as an aid to interpret and refine the research results, and not as new qualitative input data for the research.