Issue dynamics in the execution phase of large airport terminal adaptation projects

Raising understanding of actor behaviour in relation to the occurrence and management of issues
"Humans are not a rational animal, but a rationalizing one."

- Leon Festinger -
Thesis Report
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Issues, Issue management, Project management, Airport terminal construction projects, Interaction, Behavioural mechanisms, Understanding
Preface

This report presents the results of my master thesis research for the Msc programme Construction Management & Engineering (CME) at the faculty of Civil Engineering at Delft University of Technology. The past eight months I performed my thesis research as a graduate intern at Schiphol Group. This research contributes to the understanding and management of issues in the execution phase of large airport terminal adaptation projects.

Although a thesis is an individual research project it could not have been completed without the help of a great number of people. I would like to thank all of those involved in the process of completing this thesis research. There are a few people that I would like to address personally.

First of all I would like to thank Wijnand Veeneman, my first supervisor, for supporting me during the course of this thesis research. Not only your substantial knowledge and advice, but also your advice on a more personal level were very much appreciated.

For greatly supporting me and offering me the opportunity of conducting my research in a great working environment with great colleagues, I sincerely want to thank Benno de Zwart. My time at Schiphol has been very educational, and your practical expertise and scientific interest were of great value to me and the research.

Furthermore I would like to thank Hans de Bruijn and Martijn Warnier for their substantive contributions, useful ideas and critical reflections on my work. You helped me bring focus and a clearer line into my research.

Special thanks are in place for all the people I interviewed and consulted at Schiphol during my research. Without your help and openness this research would not have been successful.

And last but not least I would very much like to thank all of my friends who helped me unwind in weekends after weeks of hard work on my thesis. With your help I succeeded in my goal to not let the thesis take over my whole life.

Erik Henry

Amsterdam, August 2014
Executive summary

Introduction
In many construction projects the execution will not go according to plan. This means that discrepancies arise between the plans, and the way that things work out in practice. During the execution phase the most important managerial task is to control the project. This means constantly monitoring the progress and steering where needed to stay on track to achieve project goals. In theory this sounds very simple, but in practise all sorts of issues can, and inevitably will, arise during the execution phase. This inevitability is regarded as the result of the inherent complex and uncertain character of large projects. The definition of an issue is: “Any relevant event that has happened, was not planned, and requires management action”.

The main objective of this research is to provide insight and better understanding of issues and actor behaviour in relation to issues in the execution phase of airport terminal adaptation projects. The main research question is: “How can the understanding and management of issues emerging in the execution phase of large airport terminal adaptation projects be improved?”

Approach
The overall research approach to come to an answer on the main research question is shown in the figure below. Subsequently the steps are elaborated on briefly.

1. A brief literature review on issues and management of issues is conducted. This will provide general understanding of concepts that play a role when researching issues.
2. The formulation of issue dynamics. In this thesis issue dynamics refers to the main issue related aspects (variables) that will be researched.

1. A brief literature review on issues and management of issues is conducted. This will provide general understanding of concepts that play a role when researching issues.
2. The formulation of issue dynamics. In this thesis issue dynamics refers to the main issue related aspects (variables) that will be researched.
3. Issue mechanisms is the term that will be used for theories that can potentially be of explanatory value for understanding actor behaviour in relation to an issue event, both in the lead-up and in the response to an issue. The purpose of the mechanisms is to give meaning to the observations in the case analyses.

4. The first step in the case studies is the selection of issue cases within the One-XS project.

5. The cases are observed and analysed. Information will be gained by interviewing involved actors and project documentation. The issue events will be reconstructed on the basis of the issue dynamics. The observed dynamics will be given meaning with the identified issue mechanisms.

6. An integral view will shed light on generalities and trends in the case studies.

7. Conclusions will be drawn and recommendations will be made.

**Dynamics**

In order to conceptualize the vastness of reality a number of dynamics that are regarded as important when observing actor behaviour in issue events were defined. The following line of reasoning captures the issue dynamics regarded as important in this research:

There are: **Actors** in situations (in the lead-up and in response to an issue), **interacting** (with a nature of interacting), using **arguments, strategies**, and making **decisions**, according to their **perception** of the situation, other actors, and (inter)actions. And all of this happens over a certain period of **time** or at certain moments in time with certain **arrangements** in place.

**Mechanisms**

Mechanisms (29) were identified in an extensive literature study in all kinds of science, like Game theory, behavioural economics, and organizational behaviour. An example of a mechanism is “Competitor neglect”: The tendency to plan without factoring in competitive responses, as if one is playing tennis against a wall, not a live opponent. This mechanism is about neglecting the position and perceptions of other actors. When this happens misunderstandings and conflicts are bound to happen.

**Case observations**

With the base of knowledge as created the case observations were performed. Four cases were selected and assessed. Below a visual reconstruction, which serves as a visual aid and as a summarization, of one of the cases is shown.
General findings

General findings were formulated as a result of the integral analysis. They are presented as determining factors and as general fields of tension. The determining factors are aspects that are found to be crucial in the development of the issue events in the case studies. The general fields of tension represent important areas of conflict, difficulty, and contradiction which were elevated from the separate case observations.

Determining factors

Segmentation

There is a functional division in specialist departments within the airport organization. This division exists from functional and organizational motives. It brings structure and hierarchy and makes the diverse tasks manageable. All these divisions and departments have their own tasks, interests, goals, performance criteria, resources, roles, and power.

On the other hand segmentation also provides a situation that feeds the existence of problematic interactions. Specialized knowledge is hard to share. Segmentation in an organization makes the cooperation more difficult and decreases the shared understanding. One could call this a ‘segmentation dilemma’ between the function and necessity of segmentation and the difficulties of segmentation that have their impact on projects and issue events.

Perception

In many observed situations and issue mechanisms (especially related to rationality) it is a very important factor.

There is not one shared perception or rationality. And the goal should not be to create one. But more
awareness of the inevitable differences in perception and rationality seems crucial in project management. Especially in an operational terminal environment, in which for instance the operational actors have a lot of power, their perception and rationality is very influential.

Trust
This is an important and fundamental factor for the interaction between actors. Trust is typically a long-term phenomenon, and is not gained over night. Trust is regarded as a relational fundament for efficient and effective issue- and project management. And especially in the airport environment with long-term relationships between stakeholders the building of trust is something that is very crucial.

Roles and responsibilities
In large airport terminal projects there are a number of typical main roles and responsibilities. At Schiphol the roles and organisational structure related to projects are defined according to the STAP method, which is almost identical to the renowned PRINCE2 project management methodology.

General fields of tension

Self-interest versus general interest
Throughout the issue cases a tension is present between self-interest and general interest. It is fairly easy to focus on one’s own interests and views and to optimize within your own scope and rationality. Only ‘thinking within your own segment’ one could say.

In theory the general interest is what would ideally be strived for. The general interest can also be interpreted as the mutual benefit in the prisoner’s dilemma. The prisoner’s dilemma can be elevated to an overarching mechanism that is present throughout the case studies. When looking at the underlying principle of the prisoner’s dilemma (self-interest versus mutual benefit) this can be observed as a very evident and important general mechanism. One might even go as far as saying that (large terminal) projects are an ‘endless’ accumulation of prisoner’s dilemmas. This could be written as a formula: Project = PD^n

Substantial versus relational conflict
The most basic level of conflict is the substantial level: “what are we not agreeing about?” The highest level is the relational level of conflict: “who decides?”, “who sets the rules?”, “I am not working with you anymore!” And in between there is a level of procedural conflict: “what do the rules and procedures say?” This distinction in three main levels is very important because it seems impossible to solve problems that play at a higher level, at a lower level.

Making trade-offs between interests and standpoints is an essential part of managing a project, and to a great extent it is functional on a substantial conflict level. The other levels of conflict are less desirable and functional.

Project ‘manager’ versus operational ‘expert’
In the segmented airport environment almost everyone can be seen as an expert on their specific task within the organization. The PM has the task to manage this playing field of (proclaimed) experts. Generally it is hard to deal with experts, since it is hard to question their standpoints, arguments and opinions on matters that they can be called an expert on.

In the classical theory on manager versus expert the expert is a subordinate to a manager. In the operational airport environment the situation is somewhat different, and so a variation to the mechanism can be seen. From the viewpoint of the project and a PM a special kind of expert is present
in airport terminal projects: the operational expert. The operational expert actually has formal power, whereas the classical expert gains or strives to gain this informally by using its specific knowledge advantage.

The PM in a way also fulfills an expert role within the airport organization. What makes this expert role difficult is that managing a project requires the PM to take the role of a manager. But because the PM can also be seen as expert in some situations this becomes harder. When other actors at the table do not understand typical project management or technical matters it is harder to communicate and come to decisions together when needed.

There are a few trends that can be observed in relation to this field of tension:
- Operational parties seem to come back on decisions and agreements easily. In the airport environment this almost seems ‘normal’.
- In general the PMT does not like procedures and formalities.
- Generally predicting is encouraged and almost standard procedure for the PMT. One must be careful though not to get too carried away in this and predict prematurely or undermine other decision makers.
- The way that the PM interprets its role is of great influence to this field of tension. Purely facilitating versus very dictating approaches for instance.
- For PM’s it seemed hard to accept or deal with the power of other actors.

Contributions to scientific literature
- This research shows a alternative and unique approach to analyzing issues and related actor behaviour
- This research provided a base of knowledge to analyze actor behaviour in interactions in issue events
- This research shows a conceptual ‘model’ for the analysis of issues in airport terminal projects
- This research shows the essence of the bounded rationality paradigm in project management related research
- This research has a rather broad view of mechanisms and issues events. And with this view it shows potential scientific areas that are promising for further in-depth research
- An elevated view over the detailed and situational observations provides findings and conclusions on a more abstract and general level.
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1 Research introduction

In many construction projects (in general) things will not go according to plan. This means that discrepancies arise between the plans, and the way that things work out in practice (Dvir & Lechler, 2004). These differences can be problematic for the success of a project: Budget and time might be overrun or quality may be compromised. In fact, projects often fail to deliver within budget and time (van Marrewijk, Clegg, Pitsis, & Veenswijk, 2008) and the delivered product might be different from what was intended beforehand, known as the scope of the project (PMBOK, 2013).

During the execution phase the most important managerial task is to control the project. This means constantly monitoring the progress and steering where needed to stay on track to achieve project goals (Meredith & Mantel, 2010). In theory this sounds very simple, but in practice all sorts of issues can, and inevitably will, arise during the execution phase. This inevitability is regarded as the result of the inherent complex and uncertain character of large projects (van Marrewijk et al., 2008). Figure 1.1 provides a good illustration of this principle regarding uncertainty. De Meyer et al.(2002) claim that projects face a continuum of unexpected change varying from simple variations to chaos.

![Figure 1.1 Uncertainty, Risk, Issue](image)

Given the uncertainty and complexity it is not surprising that systematic responses (theories, tools) have been developed, like risk management, to provide order and predictability (Chapman & S.Ward, 2002). The purpose of risk management is to assess and manage uncertainty in advance and to define responses to possible future risks before they materialise (Chapman & S.Ward, 2002). Risk management seeks to identify possible problems and provide for their mitigation. But it is simply impossible to totally de-risk a project, as is visualized in Figure 1.1 by the uncertainty that is not mitigated with risk management.

In addition to risk management there are many theories that describe how to manage projects. Project management mainstream literature responds to a complex and uncertain reality in a rational and deterministic way, opting for a routine-based reliability to eliminate situated human condition as the cause of errors (Pender, 2001). The conventional view is to emphasise protocols, documentation and processes as the underlying success to project management.
The theory of bounded rationality, proposed by Herbert Simon, gives extra weight to the inevitability of issues and an alternative view that is contradictory to the classical view of rationality and mainstream response to complexity and reliability. The theory states that in decision making rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make decisions (Jones, 1999). This paradigm is an alternative to the rational-choice paradigm, as used in economics and related disciplines, which entails mathematical modelling of decision making. It sees decision making as a fully rational process of finding an optimal choice given the information available. Bounded rationality does not say that there is no rationality at all but that most people are only partly rational, and are irrational/emotional for the remaining part. Simon also argues that bounded rationality can make the ‘classical’ models more realistic.

### 1.1 Terminology

The most important terms that are used throughout this report will be explained in this section. First of all a clear definition of an issue is given, then the term ‘issue event’ is explained, and finally the meaning of the terms ‘issue mechanism’ and ‘issue dynamics’ are formulated. The last three terms are not gained from theory, but were formulated in the course of this research. They are presented here because they are used very frequently throughout the report.

#### 1.1.1 Issue

Since issues are the main topic of this research it is important to state a clear definition of an issue. Also, issue is a very broad term and needs to be specified for this research. In the PRINCE2 methodology for project management an issue is “any relevant event that has happened, was not planned, and requires management action” (Office of Government Commerce, 2009). This narrows down the definition of an issue, and describes exactly what is meant with an issue in this research. The requirement of management action is an important aspect of this definition. Without it the situation is not regarded to be an issue.

#### 1.1.2 Issue event

‘Issue event’ is a term that will be used often in this report. It refers to the complete issue event: So both the lead-up and the response to an issue, and the issue itself. In case studies issue events will be reconstructed.

#### 1.1.3 Issue mechanism

Issue mechanism is the term that will be used for a theory that can potentially be of explanatory for actor behaviour in relation to an issue event.

#### 1.1.4 Issue dynamics

In this thesis issue dynamics refers to the aspects (variables) that will be researched in issue events. These aspects form a model for observation and the basis from which the issue mechanisms will be investigated and formulated.
1.2 Research context

This research is performed in cooperation with and is commissioned by PLUS. On behalf of Schiphol Group, PLUS realizes all of the building/construction related projects on Schiphol grounds. The department manages everything; from design to completion and furnishing (Intenza, 2013).

1.2.1 Schiphol and One-XS

Handling over 50 million passengers (pax) per year, Schiphol is the largest airport in the Netherlands and the fourth largest airport in Europe (Schiphol Group, 2012). Apart from being a large airport Schiphol has been recognized as the best airport in Europe for the last two years at the Skytrax World Airport Awards, which are based on a survey among more than 12 million passengers from over a hundred different countries. This year Schiphol also climbed from the fourth to the third place in the ranking of best airports worldwide (Skytrax, 2013). Schiphol desires to remain and strengthen its position of best European airport, and therefore strives to continuously improve the quality of products and services and the efficiency of operations (Schiphol Group, 2012). Many projects are constantly being executed to adjust to the changing circumstances involving new technology, new laws and regulations, future passengers demand and the ever-growing demand for improved efficiency.

Especially in the view of expected further growth in passenger numbers, Schiphol needs to invest in capacity and quality (Schiphol Group, 2012). A large adaptation of the terminal is one of the means to continue to smoothly process the prospected future passenger growth and comply with future European legislation and regulation. The One-XS project as mentioned before entails this large adaptation. The main purpose of this project is to realize a transition from decentralized security checks to centralized checks. At this moment the terminal is divided into two areas, which are interrelated with security, boarder control and customs filters. One area is exclusively for departures and arrivals of flights to and from countries within the Schengen agreement (European Commission, 2013). This part already has centralized security checks. The other part is used to handle all other (non-Schengen) flights, and has decentralized security checks at the gates.

There are three main advantages that drive the desire to change to centralized security checks (Elich, 2013; Schiphol Group, 2012). First of all, One-XS will contribute to improved travel and accommodation comfort for the passengers. In the new situation passengers would be able to use all facilities in the departure hall without the obligation to go early to the gate for the security checking process. In addition, the transfer passengers arriving from trusted countries, will not have to be checked again at Schiphol; this phenomena is called “one stop security”. Secondly, the efficiency of the passenger flows will be improved. As more passengers will use the same security lanes, security guards and equipment can be used more efficiently. Thirdly, the One-XS project also allows to satisfy future European laws and regulations. Especially the right to bring LAGs (liquids aerosols and gels) that each passenger will have, requires new expensive security equipment, which is able to scan those materials.

The conversion to central security requires large structural adaptations in the terminal building and the piers. A more detailed description of the project will be given in section 6.1 as part of the introduction for the case studies.
1.3 Thesis outline

To clarify the structure of the report a reading guide is provided.

1. Introduction
Apart from this reading guide, the first chapter gives a general introduction to the research and the definition of an issue and other important terms.

2. Research design
The problem definition, objective, scope, research questions, and approach of the research are presented in this chapter.

3. Issues and issue management
A literature review on general issue and issue management concepts.

4. Issue dynamics
In this chapter the main dynamics (variables) for this study will be presented and substantiated with theory.

5. Issue mechanisms
An extensive literature study on explanatory mechanisms for actor behaviour in relation to issues in conducted and reported on in this chapter.

6. One-XS case studies
Cases will be selected, observed and analysed in this chapter.

7. Integral view
An overarching analysis of the case studies is performed in this chapter.

8. Conclusions and recommendations
The findings and recommendations resulting from the research will be presented in this chapter.

9. Reflection
The course and value of the research are reflected upon in the final chapter of the report.
2 Research design

In this chapter the design of the research is presented. The problem as introduced in the previous chapter will be analyzed more thoroughly. This will start by stating a clear problem definition. From the problem definition research objectives will be derived. Then the scope will be treated. In section 2.4 the research questions that will be answered to reach the objectives are formulated. And finally the approach will be described.

2.1 Problem definition

As argued, issues are inevitable in complex and uncertain projects like the One-XS project at Schiphol. Issues can possibly impact the intended process (plans) of a project. Managing issues is vital for the success of a project, because deviations from the plans have a huge impact on project success (Dvir & Lechler, 2004). The negative impact on project success of issues that need managing completely overrides the positive impact of the quality of planning (Dvir & Lechler, 2004). This emphasizes the importance of issue management for project success.

Management is human interaction. And as presented in the introduction humans ‘suffer’ from bounded rationality or even irrationality. There are many theories that try to rationalize and create order in this uncertain and rationally bounded reality. Either by opting structured methods to prevent, or to prepare and raise awareness of possible uncertainties and irrationality. So rationalizing and structuring can be seen as a mainstream trend in project management research. But little or no research has been done on underlying mechanisms that might explain actor behaviour in relation to issues. A better understanding of this behaviour can make a significant contribution to project management and issue management literature. In a practical sense there is also a need for better understanding since, according to the project director of One-XS, project managers often are not aware of the situations they are in. Raising situational awareness is something that is of practical value to project managers and the project management department of Schiphol.

2.2 Research objectives

The main objective of this research is to provide insight and better understanding of issues and actor behaviour in relation to issues in the execution phase of airport terminal adaptation projects.

This main objective is of scientific and practical nature, and has sub objectives of those natures. Practically the goal is to paint a clear picture of issue events and raise situational awareness and understanding of project managers. Scientifically the goal is to formulate and explore the value of mechanisms for explaining actor behaviour in issue events, and with this provide a new/ different view on issue- and project management.

2.3 Research scope

The previous sections elaborated on the problem and objectives of this research. Some more important delineations are necessary to further define the scope. By doing this a clear picture is given of what is studied in this thesis research and what is not. The scope will be presented by elaborating
on a number of aspects: executions phase, airport terminals, project management perspective, actor behaviour, case studies, and issue events.

2.3.1 Execution phase

To start with, only issues that emerge during the execution phase are taken into account in the case study. The main reason for this is the fact that the One-XS project, which is the project to provide case studies, entered the execution phase a few months before the start of this research. The execution phase starts with the signing of a contractor to do the work. Everything after this moment is regarded as the execution phase of the project. An important notion is that depending on the contract type and arrangements made there is still a lot of preparation work to be done during execution.

2.3.2 Airport terminals

Another important delineation for this research is that it focusses on issues in airport terminal adaptation projects. The unique aspect of construction projects in airport terminals is the fact that many activities and processes take place at a relatively small area in which multiple parties pursue their interests. And given that the focus is also on the execution phase of the project the interface with the continuing operations at the airport is extra crucial because the construction work is then actually happening in the operational terminal. Although the focus is on airport terminals it might well be that parts of this research are also applicable for other projects that are executed in the middle of an operational terminal or building. One could think of train stations, ports, or hospitals.

2.3.3 Project management perspective

The perspective in this research is from a project management point of view. The project management team (PMT) is responsible for managing a project and subsequently also for managing the issues along the way. Other actors and their perspectives are taken into account but the goal of this is not to look at the situation from their point of view but to understand the situation from the PMT perspective. The main focus is the understanding of project managers.

2.3.4 Issue events

In this study issue events will be reconstructed by observations. The term issue event will be used to describe the complete event: So both the lead-up (occurrence) and the response to (management of) an issue. The complete issue event lies within the focus of this research.

2.3.5 Actor behaviour

The focus of this research is on the behaviour of actors in issue events. No connection or relation will be made with management methodologies. The focus is purely on gaining better understanding of the behaviour of actors and the interaction between them. And not on what project management methodologies were and/or should be applied. Project management methodologies and procedures are not in the scope of this project. Research on methodologies (like project and process management styles) is something that is done very often. This research does not have this desire.

2.3.6 Case studies

The One-XS project, which was shortly introduces in chapter 1, will have a central role in this study by providing several issue cases for observation. From a long-list of issues cases will be selected and analyzed. Information needed in order to make a reconstruction of the issue event will mainly be
gathered through interviews. To complement the interviews relevant documentation will also be viewed when available.

### 2.4 Research questions

For the overall research project a main research question is composed. To support this question several sub questions, which will be answered during the course of the study, are formulated.

**2.4.1 Main research question**

*How can the understanding and management of issues emerging in the execution phase of large airport terminal adaptation projects be improved?*

**2.4.2 Sub research questions**

To assist in eventually answering the main research question a number of sub research questions are formulated for this research:

1. **What types of issues can be classified in the execution phase of large airport terminal adaptation projects?**
   
   Literature on issue types will provide a general image of issues.

2. **How can issues be managed in the execution phase of large airport terminal adaptation projects?**
   
   Answering this question will provide for a general presentation of issue management theory and concepts. The first two questions together cover the most basic concepts of an issue event.

3. **What are the main components that make up the dynamics around issues?**
   
   By giving answer to this question the dynamics that are regarded in this study are defined. The most important dynamics will be analyzed and discussed.

4. **What theoretical mechanisms can be identified to possibly explain actor behaviour in relation to the occurrence and management of issues?**
   
   An extensive literature study will provide a base of knowledge with potential explanatory value for actor behaviour.

5. **How do issue dynamics manifest themselves in issue events in the execution phase of One-XS?**
   
   To answer this question issue cases will be selected, observed and ‘reconstructed’. This will provide a picture of issue dynamics from practice. All cases will be provided by the One-XS project at Schiphol.

6. **How do issue mechanisms manifest themselves in issue events in the execution phase of One-XS?**
   
   This sub question entails the identification of issue mechanisms in the reconstructed issue events. This will possibly provide more understanding of the issue events.

7. **What scientifically valuable generalities can be observed throughout the case studies?**
   
   With this sub question the research zooms out of the situational observations to a more abstract and general level. Significant general findings will be formulated to answer the question.
2.5 Research approach

To fulfil the objectives and get answers on the research questions formulated in section 2.4 a research approach with appropriate research methods will be formulated and substantiated here. Important in this research is the notion that there are 2 main parts of research. The theoretical part which focusses on the conceptualisation and formalization of issue dynamics and mechanisms. And the empirical case study part of the research which describes and analyses these issue dynamics and mechanisms in real issue cases.

In the next sections the complete approach as presented in Figure 2.1 will be explained. All six steps of the approach will be described and where needed theory is presented to substantiate the approach.

2.5.1 Step 1: General issue theory

In the first step a brief literature review on issues and management of issues is conducted. This will provide general understanding of concepts that play a role when researching issues. This forms a first step towards the conceptualization of the issue dynamics in the next step. This step will be reported on in chapter 3.

2.5.2 Step 2: Issue dynamics

The next step is the formulation of issue dynamics. In this thesis issue dynamics refers to the main issue related aspects (variables) that will be researched. These aspects form a model for observation and the basis from which the issue mechanisms will be investigated and formulated. These dynamics
are the heart of the conceptualization of reality that is performed for this study. In the next paragraph a short explanation of conceptualization will be given.

2.5.2.1 Conceptualization

At the top of Figure 2.1 the conceptualization is visualized. The reason for conceptualizing in this thesis is that reality is very complex and entails an unlimited amount of aspects that can influence each other and an issue event. Conceptualizing this reality makes it manageable and workable in a study like this. An inherent downside to conceptualization is that it will give a poorer image of reality than the full reality. It is important to address and realize this notion. But on the other hand this is also the strength of conceptualization. It provides a model with which reality can be made understandable, communicable, analyzable, and manageable within the limited time available for this thesis research.

2.5.3 Step 3: Issue mechanisms

Issue mechanisms is the term that will be used for theories that can potentially be of explanatory value for understanding actor behaviour in relation to an issue event, both in the lead-up and in the response to an issue. The purpose of the mechanisms is to give meaning to the observations in the case analyses (red arrow in Figure 2.1). The dynamics that are formulated in the previous step are used as a base for this literature study. These mechanisms can originate from all kinds of sciences, and will be presented in chapter 5.

2.5.4 Step 4: Case selection

After the mechanisms are formulated the research progresses to the next phase, which is the case study part of the research. The first step in the case studies is the selection of issue cases within the One-XS project. On the basis of selection criteria four cases are selected from a long list of possible issues. The case selection is visualized on the bottom of Figure 2.1.

2.5.5 Step 5: Case observations and analyses

When issue cases are selected the cases are observed and analysed. Information will be gained by interviewing involved actors and project documentation. The issue events will be reconstructed on the basis of the issue dynamics. The observed dynamics will be given meaning with the identified issue mechanisms. In this stage the cases will be separately compared to theory, and no cross-case analysis is performed.

2.5.5.1 Deductive character

This way of doing research closely resembles a deductive way of doing research. In deduction theories are tested with data and observations (Blackstone, 2012), see Figure 2.2. Although the conduct is the same as in deductive research, the slight difference in this study is that the goal is not to prove that certain theories are supported or correct, but to gain better understanding of issue situations. The theories have a more explaining and educating function than a hypothesising function.

Figure 2.2 Deductive research (Blackstone, 2012)
In Figure 2.3 the double black arrows represent these separate case analyses. In section 6.2 the case study approach will be explained in more detail.

### 2.5.6 Step 6: Integral analysis

In the previous step the cases are observed and analysed separately. This is a logical methodology that suits the objectives of this study. But to put the case findings into perspective an integral analysis is also performed. What is meant with this is visualized in Figure 2.3. Singular and situational observations from the cases can possibly be strengthened by similar observations in other cases. The goal is to formulate findings on a more general and abstract level with this analysis. Also more can be concluded on the value of the identified issue mechanisms in certain situations. So in that sense this step also has a validating character for the identified issue mechanisms. This validating ‘loop’ is also indicated in Figure 2.1.

![Figure 2.3 Integral analysis concept](image)

### 2.5.7 Step 7: Conclude and recommend

This step includes the finalization of the study. Conclusions will be drawn and recommendations will be made. In addition also a reflection will be given on the research and research process.
3 Issues and issue management

In this chapter a brief literature review will be carried out on issues. This will create a clearer picture of the focus of this thesis research and provide understanding of the concepts that are important. The following sub questions are leading in this chapter:

1. What types of issues can be classified in the execution phase of airport terminal adaptation projects?

2. How can issues be managed in the execution phase of airport terminal adaptation projects?

First different types of issues will be described and then theoretical concepts on issue management will be addressed.

3.1 Issues

The PRINCE2 methodology for project management distinguishes three different types of issues (Office of Government Commerce, 2009):

Requests for change: A proposed adjustment of the agreed specifications or acceptance criteria

Off-specification: Part of the agreed specification or acceptance criteria cannot be met. Either now or in the future.

Problem or concern: Anything else that either needs to be resolved by the project manager or needs to be escalated to a higher level of management.

In his research Söderholm (2008) defines three categories of unexpected events in execution: re-openings, revisions and fine tuning. These can also very well be applicable to issues. The description of an unexpected event is very similar to the description of an issue in this study. They both are the result of uncertainties that can threaten project success.

Re-openings have to do with stakeholder relation. Stakeholder interests, preferences and mutual relations change over time. Stakeholders are not necessarily expressing one single desire or a set of demands that are unambiguous. These changes of stakeholders' interests sometimes result in re-openings of projects. Re-opening means that the project is opened up for new definitions in terms of for example task, time or costs.

Revisions have to do with a change in initial plans. Plan changes are argued to be inevitable when plans are made over a longer time and the project is dependent on other projects or companies and the results of their work.

Fine-tuning is the daily task of keeping the project going. Team members need to be motivated and committed to the project. They need to be protected from environmental and organizational disturbances, especially in a multi-project firm organization. Fine tuning indicates a constant flow of information, experiences and people in to and out from the project.
Geraldi et al. (2010) also performed a study on the management of unexpected events in projects. In their research they determine seven different unexpected event categories which could also be explained as issue event categories:
- Technical issues “unexpected performance of a technical system”
- Sponsor withdrawing support “project dismissed by overhead management”
- Externalities “war in a country”
- Resource change “new constructor”
- Resource constraints “resource pulled to other project”
- Human behaviour – disregarding rules and protocols “war protocol neglected”
- Project scoping issues “major changes in scope”

These event categories are more specific. This does not mean these categories are more suited than the previous types of issues. Presenting this theory has the purpose of sketching a general image of issues and what kinds of issues one could expect in the execution phase of terminal adaptation projects. The goal is not to define one issue categorization framework.

### 3.1.1 Interrelatedness of issues

Issues cannot simply be seen as singular events. They can very well be related to each other. One can imagine that when issues arise, this might trigger more problematic situations as a result or issues might arise simultaneously. To support this interrelatedness Boggelen (2011) concluded that unanticipated key moments are often causally related to each other.

### 3.1.2 Issue context

To understand issue situations understanding of some contextual aspects can be of importance. The project context is considered to be the complete project environment, and this consists of an unlimited amount of variables (Boggelen, 2011). This means that not everything can be taken into account, and a selection of the most important aspects will be made. For this study this will be done as a part of the issue dynamics analysis in chapter 4. The contextual factors that are important for this study will be argued in section 4.6 (Arrangements). To sketch important contextual aspects the context variables from two studies that show similarities to this study are given below.

Boggelen (2011) indicates the following project context variables to be important: Project team composition, Recourse availability, Client type, Contract types, Stakeholders, Project task, and Relevant legislation.

Elich (2013), who performed a study at Schiphol airport on scope changes, used the following context variables in his research: Project structure, Project arrangements, Recourse availability, Moment in time during the project, Existence of change procedures.

### 3.2 Issue management

In this section issue management will be theoretically researched. The main concepts of issue management will be presented and elaborated on.

Issue management is the process of identifying, analysing, responding to, and tracking issues facing the project (QNPM, 2007). The overall goal of issue management is to protect the project from the negative impact of issues. The objectives of issue management can be defined as follows (QNPM, 2007):
- Monitor a project to identify new or changing issues.
- Understand and minimize the cost and other impacts of project issues.
- Focus management attention on higher priority issues.
- Make issue-related decisions at the proper level of authority.
- Communicate clearly about issues with the team and project stakeholders.
- Maintain a clear and accurate record of issues and related actions over the life of the project.

An important aspect of the execution phase and issue management is monitoring and controlling. Figure 3.1 shows this principle in three steps. It is performed to identify potential problems (issues) in order to take corrective actions when necessary (Meredith & Mantel, 2010). So issue management contributes to the monitoring and controlling of a project in execution.

![Figure 3.1. Project Monitoring and Controlling](image)

Weick (1976) argued that managing deviations from the project plan calls for a degree of distinctiveness between the event and the organising process. Without this distinctiveness the management will not have an understanding of the event. And identifying an event requires a degree of responsiveness. Without it the manager will not be able to implement appropriate actions.

### 3.2.1 Concept of issue management

Figure 3.2 is a simplified visualization of how issues might be managed in practice. Issues disrupt the process of a project, and can possibly cause discrepancies with the plans. A disruption of the process means that the process of executing the plans as intended is confronted with an issue that needs management action. It does not (yet) mean that the potential impact of an issue has occurred.

In Figure 3.2 the horizontal blue arrow represents the (ideal) process of carrying out the plans in order to reach a desired realization of the plans. The diverging lighter blue arrow is the possible discrepancy from the plans that can be caused by an issue that impacts the process. Once an issue occurs and is identified issue management is necessary to prevent or control an unwanted impact and its consequences: either by preventive or corrective action (PMBOK, 2013). Preventing the issue from impacting the project is the most desirable strategy from a project management perspective (number 2 in Figure 3.2). If prevention is not possible or unsuccessful the impact of the issue should be controlled/corrected to prevent undesirable influence on the project. There are basically two ways of doing this; number 3 in the figure represents (immediately) mitigating the effects to return to a desired course for the project. Another option is to temporarily separate the issue from the project and deal with it in a later stage (number 4). Especially in a large project with a long duration there is typically more room for ‘putting on hold’ issues so to say. This room is strongly related to the amount of...
scheduling flexibility (PMBOK, 2013).

Instead of dealing with an issue that has occurred it is also possible to prevent an issue from arising (number 1 in Figure 3.2). It could be that management at some point estimates an issue might be arising and takes action to prevent it from occurring. Risk management is strongly related to this, because it tries to recognize and prevent issues from occurring. In that case a potential issue is recognized (as a risk for instance) and preventive actions are undertaken to minimize the chance of the issue to occur.

In the figure issue prevention is visualized between the origin (lead-up) of an issue and the issue itself. As argued in the scope (section 2.3) the complete issue event will be observed in this study, so the lead-up, the issue itself and the response to the issue. As also visualized in Figure 3.2 actors can and probably will be involved in all of these ‘phases’ of an issue vent. They can (directly and indirectly) be involved in the complete issue event. In chapter 4 actors will be discussed in more detail.

Figure 3.2 Issue management concept

The four ‘types’ of issue management as shown in Figure 3.2 will now be addressed briefly.

1. Issue prevention
This is for a large part done by risk management. Trying to avoid certain issues by acknowledging their possible occurrence and therefore incorporating preventive measures in the plans. It is also possible that a PM for instance sees an issue threatening to arise in a very early stage and acts in order to prevent the issue from emerging.

2. Impact prevention
When issues do occur management can take action in order to prevent them from impacting the project where/if possible.
3. Mitigation
If an issue has impacted the project the goal is to get the project back on track to realize the plans as desired. It might also be that a change request is filed and approved. In that case the desired plan to be realized is changed. But this still demands for mitigating action to get the project on that new track.

4. Separation /on hold
When an issue occurs it might be possible and desirable to set it aside and deal with it in a later stage or put it on a side track to minimize impact on the project as a whole.
This is similar to the detachment strategy described by Söderholm (2008), in which issues are decoupled and then either isolated or re-coupled in a later stage as a result of management action.

3.3 Intermediate conclusion
In this chapter a short introduction to issues and issue management was provided. This provides a general understanding and a first conceptual presentation of issues and their management. An important aspect for the case studies is that a distinction will be made between the lead-up and the response to an issue. Both sides of the issue event are part of the study.

Reconstructing the lead-up to the actual issue in the execution phase gives insight in the occurrence of the issue and actor interactions related to the occurring of the issue. It provides understanding of the issue situation and where it came from. This can also have a learning effect for future situations. It can help in recognizing events and possibly preventing an issue in the execution phase of a project.
Reconstructing the response to an issue gives insight in the impact of an issue and the way that different parties responded to the issue and interacted with each other as a result of the issue.

Issue management contributes to the monitoring and controlling of projects in execution. It can be conceptualized to the following four ‘types’ of issue management: Issue prevention, impact prevention, mitigation, and separation/on hold.
In this chapter the main components that will make up an issue event in this study will be formulated and presented. The result of this chapter will be the issue dynamics ‘model’ that will be used to structure the case observations and to form the basis for formulating issue mechanisms, like explained in the research approach in section 2.5. This chapter will conceptualize the vast reality in which issues take place, like argued in the approach. The following sub question will be answered in this chapter:

3. What are the main components that make up the dynamics around issues?

The dynamics will be argued by common sense, logical reasoning, experiences at Schiphol, and theory. The general line of reasoning for the dynamics to be formulated in this chapter is the following:

There are: **Actors** in situations (in the lead-up and in response to an issue), **interacting** (with a nature of interacting), using **arguments**, **strategies**, and making **decisions**, according to their **perception** of the situation, other actors, and (inter)actions. And all of this happens over a certain period of **time** or at certain moments in time with certain **arrangements** in place.

The different aspects will be addressed and argued one by one in the next sections.

### 4.1 Actors

The first, and most evident component are actors. There will always be actors involved with issues. At least actors from the project management team are involved, but typically actors representing stakeholders will also be involved. The project stakeholders are those actors which will incur – or perceive they will incur – a direct benefit or loss as a result of the project (Graham M. Winch, 2010). A distinction can be made between internal stakeholders, that are part of the network operator’s (Schiphol Group) organisation and external stakeholders. Companies are part of an external network: they depend on the support of external parties (De Bruijn & ten Heuvelhof, 2008). So the organisation itself cannot decide who is stakeholder and who is not. However, stakeholders should be managed, which is an important aspect for project success. Stakeholder management aims to formulate and implement processes which satisfy all and only those groups who have a stake in the project (Hit, Freeman, & Harrison, 2001).

#### 4.1.1 Network of actors

An important notion is that actors do not exist on their own; a network of actors exists. An organisation in which different societal interests are institutionalised is likely to have a network character (De Bruijn & ten Heuvelhof, 2008). Such a network is defined as: “a number of actors with different goals and interests and different resources, who depend on each other for the realisation of their goals.” These networks could exist both within the organisations and between different organisations (De Bruijn & ten Heuvelhof, 2008). So, most terminal operators have an internal network and are part of an external network as well.

Figure 4.1 shows the main groups of actors involved in the execution phase of an airport terminal adaptation project. The project team is highlighted because it plays a central role in the project. In addition to the preparation phase of a project, a contractor is involved in the execution phase. The
contractor mainly interacts with the project team. At Schiphol (and probably every large airport) the
relations are quite unique because apart from the contractors all the stakeholders are pretty much
permanently the same. Either internal divisions of the airport (like Passengers Services), business
partners (like KLM), or governmental institutes (like customs). Also the project management team is
part of the airports organisation. These are important notions because it means that the stakeholders
have long-term relationships.

When it comes to actors (and stakeholders they represent) there are five aspects that are regarded as
important in this study: interests, responsibilities, roles, positions, and capabilities. In the next sections
these aspects will be shortly discussed. A more elaborate analysis related to the actors in a large airport
terminal adaptation project can be found in appendix B. That analysis will sketch a more detailed scene
of the playing field in the execution phase of large terminal adaptation projects.

4.1.2 Interests
Stakeholders will have their interests, which are a driver for how they behave and act. Interests that
are related to the issue will be of value for this study and an aspect for observation.

4.1.3 Responsibilities
Actors will also have their responsibilities concerning the project and in relation to situations in an
issue event. Project agreements (like contracts) and organisational structure (like hierarchy) typically
determine the responsibilities of the involved actors. But also other agreements can be made to assign
responsibilities. In appendix B the responsibilities of the main players (types of actors) are addressed.
4.1.4 Roles

Actors can have certain roles when it comes to management of airport terminal adaptation projects. These roles can be situational, but are also very much linked to their formal job function. But their roles might change in different situations. With these roles a more abstract description of an actor can be given, since they are not Schiphol specific but generally applicable. Explanatory issue mechanisms could very well be role related. The following roles are identified:

**Related to the general airport environment:**
- Asset owner (internal)
- Operational (manager) (internal)
- Commercial (manager) (internal)
- Business partner (external)
- User (internal and external)
- Passenger (external)

**Related to project management:**
- Client
- Project Manager
- User
- Supplier
- Advisor
- Executer

**Related to general decision making:**
- Decision maker
- Information bearer
- Advisor

**Related to hierarchy:**
- Superordinate
- Subordinate

4.1.5 Positions

Actors will be part of situations related to issues. In these situations they will have a certain ‘position’. This position tells about their standpoint concerning the situation. The most trivial positions would be for an actor to be proposed or opposed to a situation or another actor. Or supportive or resistant (Robey, 1979). But it could also be a neutral or careless position for instance.

4.1.6 Capabilities

An actor will have certain capabilities. This can be seen as the ‘weapons’ an actor has to its disposal and can possibly use. These are strongly related to the role and (formal) power a certain actor has. For instance:
- The capability (and formal power) to shut down the construction work.
- The capability of making certain decisions.
- The possibility to use certain resources (Spend money, or hire more people for instance)

More details on power will be presented in the next section on interactions.
4.2 Interactions

Given the fact that actors are involved in the occurrence and management of issues there will inherently be interaction between the actors. Interaction is a mutual reciprocal relationship or influence with stakeholders (Plaza-Úbeda, Burgos-Jiménez, & Carmona-Moreno, 2010). The interactions will mainly take place in the project managerial interfaces like presented in appendix B. In this section theory on relevant interactions that play a role in managing will be analyzed. These two aspects are inherently connected to each other. Managing simply is not possible without some sort of interaction, and the quality of interaction is considered a key factor in project success (Amoakogyampah & White, 1993). In addition to project success interactions are also key in process success (Veeneman, 2012).

Figure 4.2 gives a very conceptual visualization of interactions in relation to issues. Actors and their interaction can both be in relation to the occurrence of an issue and to the management of an issue that has occurred. It might well be that the same actors are involved in the occurrence and in the management of the same issue.

It are the interactions related to issues that are of interest in this study, and will form a great part of the reconstruction of issues in the case studies. Understanding these interactions will greatly contribute to the understanding of issue events.

4.2.1 Nature of interaction

Elich (2013) performed an extensive qualitative analysis of interactions related to project management. He concluded a framework for the nature of interactions on the basis of different literature related to interactions. His framework includes main interactions and their forms of appearance and indicators. His framework describes the following aspects to be important when observing interactions: Trust, Involvement, Relationship, Power, and Communication. These aspects will form the base for studying interactions in this research and will be elaborated on in the following sections.

4.2.1.1 Trust

Trust is regarded as a fundamental factor for project success (Atkinson, 2004). Trust and a deep sense of mutual respect are essential to the effective functioning of project execution processes. In contrast to this distrust and disrespect are considered problematic. In his research Boggelen (2011) concludes that the level of trust between two parties has a huge influence on how efficiently scope changes and
other turbulences are managed. The reason for this was mainly that when there was trust, time consuming formal procedures are postponed and dealt with at a quieter time. Having trust between the PMT and other actors makes a project much more reactive. An important characteristic of trust is that it generally grows over time, it is not something that is there over night. The long-term character of the stakeholders at an airport could in theory be very trustful. On the other hand this can also mean that untrust forming relationships have been formed between stakeholders over time. These are important factors for observation.

4.2.1.2 Involvement

Involvement is regarded to have an effect on project success (Ives & Olson, 1984). In general, one would say that involvement is positive for project processes and ultimately project success. But on the other hand (and if you think of it) involvement can also be undesirable. Too much involvement can become obstructive for the project process. So it is important that involvement is desired or demanded from the side of the PMT. Ives and Olsen (1984) have described six different classifications of involvement:

- **No involvement**
  - Users are not willing or not invited to participate

- **Symbolic involvement**
  - User input is requested, but ignored

- **Involvement by advice**
  - Users are asked for advice through interviews or questionnaires

- **Involvement by weak control**
  - Users have approval responsibility at each stage of system development

- **Involvement by doing**
  - The user is also member of design team

- **Involvement by strong control**
  - Users are paying directly for new development out of their own budgets

These classification merely describe the type of involvement. Whether or not this is of value or best interest to the project is up for interpretation and dependent on the situation. These types of involvement can be used to describe involvement in case observations and analyses.

4.2.1.3 Relationship

The general relationship between stakeholders can be divided into 4 types: power based, collaborative, conflicting and one-sided (Onkila, 2011). These can be seen as more general characteristics of the nature of interactions, and pretty much speak for themselves. These aspects can help to describe the relationship between actors or stakeholders. Power based relationships are, for instance, overlapping with the power dimension of interactions that will be described next.

4.2.1.4 Power

Power concerns the capacity of actors to exert their will over others (Huczynski & Buchanan, 2007). According to Winch (2001) power can have three faces:

- The ability of A to directly influence the decision by B (Overt power)
- The ability of A to set the range of choice available to B (Agenda setting)
- The ability of A to create a culture in which B does not consider options unacceptable to A (Hegemony)
These three faces can indicate how powerful an actor or stakeholder is. An important notion is that power is not so much a property of an individual as it is a property of a relation between two individuals (Easley & Kleinberg, 2010). Power can be seen as a property of the individual which is exercised in a relationship with other people (Huczynski & Buchanan, 2007). Power and influencing tactics will be subject for further investigation in the mechanisms study (chapter 5).

4.2.1.5 Communication

In interactions communication is crucial. Krauss & Morsella (2002) conclude that all conceptualizations of communication share the idea of information transfer: Information that originates in one part of a system is formulated into a message that is transmitted to another part of that system. Information and communication is crucial in making decisions during project execution, both directly and indirectly related to issues. Without adequate information the chance of making the right decision diminishes. Bad communication may lead to information asymmetry, misunderstandings and less situational awareness (Op de Woert, 2013). These aspects can both cause issues or make it more difficult to resolve them. Op de Woert (2013) also concluded the following on these three aspects:
- Information asymmetry allows strategic behaviour and decreases the chance on a fair negotiation
- Misunderstandings cause unnecessary conflicts which can be costly and time consuming.
- Situational awareness is necessary to coordinate different goals and to prepare for unexpected events.

4.3 Arguments

Actors will have substantive arguments to argue their position in an issue or related situations leading up to an issue or in response to an issue. In the observation and reconstruction of issue events arguments of involved actors can be valuable for understanding their behaviour. Arguments substantiate the wishes, demands, requirements, or positions of actors. In logic and philosophy theory, an argument is an attempt to persuade someone of something, by giving reasons for accepting a particular conclusion as evident (Audi, 1998).

Arguments are not so much a subject for the literature study on issue mechanisms. They are mainly an issue dynamic that is important for the case observations. Arguments have a supportive role in the whole dynamics around issues. They substantiate the behaviour of actors.

4.4 Decisions

Decision-making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Decision-making is one of the central activities of management and is a huge part of any process of implementation (Reason, 1990). Over the course of a project many decisions are made by involved actors. In decision-making there are typically decision makers and information bearers. The decisions related to issue events are important for this study. Especially the reasoning for the decisions is of interest.

A major part of management can be seen as an information game. Accurate, timely and (most importantly) relevant information streams are crucial in this respect. Hatfield (2014) claims that the 20% poorest managers with 80% of the information needed to make a deliberate/correct decision will always out-perform the top 80% managers who only have access to 20% of the information needed to ensure a good decision. This is a very arbitrary statement, but what is important is the illustration of
the essence of information. A well informed decision is preferable for the quality of a decision. But with such a large project in a dynamic environment and under great time pressure due to strong deadlines it might not always be possible to take all the time needed to make a well informed decision (Von Glinow & Albers Mohrman, 1990). Decisions and decision-making are important factors for observation in the case reconstructions and an interesting area for the mechanisms study. Theories related to the difficulties of decision making can possibly be of explanatory value.

## 4.5 Strategies

Actors can use strategies in order to realize their goals, and exert so called strategic behaviour (De Bruijn & ten Heuvelhof, 2008). This complicates the dynamics, but it is realistic to acknowledge this aspect. Observing strategies can possibly give great insight in the reasoning for how an issue event developed.

And strategies are also an important subject for the issue mechanisms study. Strategy related mechanisms potentially have great explanatory value for actor behaviour and how an issue event developed. In the next sections some more theory on strategies is presented. This will form a basis of knowledge for further literature study in the mechanisms chapter (chapter 5).

### 4.5.1 Strategic behaviour

Actors can exert strategic behaviour in order to realize goals and interests. Or maybe even just to block others from reaching their goals. Apart from the reason for using strategies it often is the case that actors themselves do not know they apply a strategy (De Bruijn & ten Heuvelhof, 2008).

Actors are also rarely explicit about their interests, and are generally not very open about their resources and relations. And even when a resource has been mapped out, the question is whether an actor will be prepared to use it. So one can say that strategies are used by actors in the playing field of interests, goals, and resources, and have their effect on how an actor interacts.

### 4.5.2 Law of diminishing effectiveness

This law implies that the effectiveness of strategies may eventually diminish. The reason for this is that when a strategy is used a number of times, other actors learn how to recognise it and realise what effect it may have. They can then attempt to deprive the strategy of its influence by using counter-strategies (De Bruijn & ten Heuvelhof, 2008). As a result a chain of strategies and counter-strategies might evolve. The law and this chain of strategies make issue dynamics more complex and capricious, and increase uncertainty.

De Bruijn & ten Heuvelhof (2008) give some examples of counter-strategies in their book on management in networks:

**Using a strategy to the point of absurdity:** when an issue agenda is created by one actor, other actors may add many more issues to make the project unmanageable. The strategy is exaggerated, causing it to lose its effectiveness.

**Pointing out the weak public performance of the strategy:** Countering the strategy by claiming the front stage problem formulation is vague and unclear, causing other actors to doubt the use of cooperation.

**Using the same strategy for conflicting goals:** using the same strategy, sometimes in a slightly different form.
Unmasking the strategy: When one actor designs a strategy, the other may counter by only serving to realize the aims of the first actor.

4.5.3 Rules of the game

Rules are used to moderate strategic behaviour. When the rules of the game are set clearly and they are obeyed the chance of strategic behaviour is regarded to become smaller (De Bruijn & ten Heuvelhof, 2008). There are two types of rules in decision making:

- Rules concerning the positions of actors in the decision making
- Rules concerning the process of decision making

Reliability and trust depend strongly on the extent to which actors obey the rules of the game. But there is a paradox in this relation. The reliability paradox (De Bruijn & ten Heuvelhof, 2008): for actors to function effectively in networks, they will use strategies in their interaction with others. If they use strategies without any reserve, other actors may lose trust in them. Unreserved use of these strategies may harm their reliability. If trust in, and the reliability of, an actor have been harmed, his interaction with others will be hampered severely - Who wants to cooperate with an unreliable actor? - which may cause these actors to lose their effectiveness. This paradox indicates an important relation between the use of strategies and trust, which is an important aspect of interaction.

4.6 Arrangements

In section 3.1.2 the context of issues was shortly described, and there was argued that there are numerous variables that make up the context of projects and issue events. From the context a few aspects are regarded as arrangements in this study, hence the title of this section. The main function of arrangements is to control uncertainties. People tend to have this desire and it is very understandable, especially in large projects with great complexity and uncertainty. Interactions are regulated by arrangements within and among organisations (Veeneman, 2012).

Arrangements are primarily an important dynamic for the case observations, and not so much for the mechanisms study. They can be determining for the course of an issue event. The arrangements (contextual variables) that will be observed in this study will be:

- Contracts
- Procedures
- Structures

4.6.1 Contracts

Since the focus of this research is the execution phase of projects there are contracts in place with contractors to execute the work. The type of contract that is in place can be of influence to the situation. It is part of the context of an issue event. Part of the project has a building team contract for instance. This is a very different situation from a more classical contract in which the contractor is just the executor of the plans made.

4.6.2 Procedures

Related to an issue procedures might be in place that prescribe certain processes. A general procedure for issue management for instance. Also arrangements can be in place that describe certain rules or processes between departments of the airport. Many project management organizations use certain project management methodologies. At Schiphol for instance the STAP method has been developed
(Schiphol Group, 2013), which describes project management procedures and processes. This methodology is very similar to the renowned PRINCE2 methodology (Office of Government Commerce, 2009).

At Schiphol there are also issue procedures in place. An issue register is kept and a process for change management is formulated. When an issue is a change this procedure comes into play. This process is shown in Appendix E.

4.6.3 Structures

Structures regulate responsibility and coordination (Veeneman, 2012), and are only designed once in a project. Organisational structure and project management structure are the most important levels of structure in this research.

In appendix C the organisational structure of Schiphol is presented. This will show the main departments of Schiphol and a few important sub departments (for this research). In appendix D the project structure of One-XS can be found. These structures are important for understanding responsibilities of different actors and (formal) relations between actors.

4.7 Timing

In a complete issue event it is relevant to look at the moment in time of the events that took place in relation to the issue. It can be important when a decision was made for instance, how much time there was between two events, or how long a situation lasted. And also the general chronology is important when reconstructing issue events. Timing can be very crucial in management.

The timing is especially important for reconstructing a clear issue event, and not so much for the formulation of issue mechanisms.

4.8 Perception

It is the perception of reality which shapes and directs behaviour, and not some objective understanding of it. This is strongly related to the bounded rationality paradigm in which people ‘suffer’ from not having perfect information, understanding and capabilities (Jones, 1999). Each actor perceives the world around him in a different way. Human behaviour is a function of the way in which we perceive the world around us, and how we perceive other people and events in that world (Huczynski & Buchanan, 2007). Op de Woert (2013) concludes the following about perception in his research on conflicts: The chance of a good outcome of a conflict increases if both parties have the same conflict perception. This indicates the importance of perception, which is also applicable in this study.

An important notion is that the previous dynamics are put into perspective with this dynamic. It is important to investigate what an actor’s perspective of relevant situations and actions is for understanding the development of an issue event. Also mechanism could well be related to the phenomenon of perception.
4.9  Intermediate conclusion

In this chapter the main components (dynamics) that are regarded as relevant in issue events have been formulated. On the basis of these dynamics issues will be observed and explanatory issue mechanisms will be studied. The general line of reasoning for these dynamics was the following:

There are: **Actors** in situations (in the lead-up and in response to an issue), **interacting** (with a nature of interacting), using **arguments**, **strategies**, and making **decisions**, according to their **perception** of the situation, other actors, and (inter)actions. And all of this happens over a certain period of **time** or at certain moments in time with certain **arrangements** in place.

The dynamics and their main aspects are:

**Actors**
- Interests
- Responsibilities
- Roles
- Positions
- Capabilities

**Interactions**
- Trust
- Involvement
- Relationship
- Power
- Communication

**Arguments**

**Decisions**
- Information

**Strategies**

**Arrangements**
- Contracts
- Procedures
- Structures

**Timing**

**Perception**
- Bounded rationality
In this chapter an extensive literature study is performed to identify theories that can potentially be of explanatory value for understanding actor behaviour in relation to an issue event. The dynamics that are formulated in the previous step are seen as aspects to study for this literature study. Literature in a wide variety of scientific research fields (like Game theory, Behavioural economics, Organizational management, Organizational behaviour, Psychology, Team dynamics) is studied and the most promising mechanisms will be presented in this chapter.

As indicated in the research approach (section 2.5) the goal of the mechanisms is to give more meaning to the observation in the case studies. In the separate cases a comparison will be made between these theories and observed reality. Potentially the mechanisms can give meaning to and be explanatory for:

- **Situations** (which actors are/could be in)
- **Interactions** (how they act/behave)
- **Strategies** (how they opt to realize their goals and interests)

An important notion is that mechanisms are not mutually exclusive, and may well occur in combination with each other. The sub question related to this chapter is:

4. What theoretical mechanisms can be identified to possibly explain actor behaviour in relation to the occurrence and management of issues?

Each mechanism will now be presented and argued. They are not ordered in a particular way, so this says nothing about the mechanisms. As a whole they will enrich and finalize the conceptual (and theoretical) phase of this research.

### 5.1 Manager versus expert

The manager versus expert mechanism implicates that interaction between managers and experts can be difficult. They often will not understand each other, or will not share the same goals and interests. The expert and manager do not view the world or a problem through the same glasses, and this can be problematic for communication, involvement and understanding. In his research Bass (1986) indicates that a task oriented management style conflicts with a subordinate that is able to perform the task at hand. Nicholas & Steyn (1975) add that giving orders induces a “no, I won’t do it” reaction, and that subordinates are the experts. The most important notion about experts (also referred to as professionals, or specialists) is that they prefer autonomy in their work (Von Glinow & Albers Mohrman, 1990). This makes them unreceptive for directive management styles. They value their operational autonomy, commitment to their profession, and the standards of their profession (Von Glinow & Albers Mohrman, 1990). Experts like to be trusted on their capabilities and not be told what to do. (Project) managers have a good view of the total system, but they are farther removed from problems than the experts and often do not know the answers to technical or specific questions like the experts do (Nicholas & Steyn, 1975).
5.2 Arrogance

Arrogance is a fatal trait for managers to have, because an arrogant manager does not believe himself to be error-prone. This means that he will tend to not put in extra effort to gain sufficient data to make a truly informed decision (Hatfield, 2014). He believes that his hunches and instincts are suitable for decision making. This development most likely has a negative effect on project success, since the chance of bad decision making rises (Hatfield, 2014).

Baumeister (2003) states that people who think highly of themselves are likely to become irrational and make foolish, costly choices. The reason for this is that they are often quite concerned with looking good and making a good impression. Baumeister adds that criticism and embarrassing failure are important triggers for arrogance to become problematic.

5.2.1 Overconfidence

A principle that is related and adds to the previous theory is that of cognitive dissonance, first described by Leon Festinger. His experiments showed that humans will always try to convince themselves that they have made the right decision (Festinger, 1957). This can also be seen as a form of arrogance, and can also feed it.

5.3 Chicken games

The chicken game is one of the most renowned games in game theory. It is a model of conflict for two players. The principle of the game is that while each player prefers not to yield to the other, the worst possible outcome occurs when both players do not yield (Barough, Shoubi, & Skardi, 2012). The classical example of a chicken game is described by two drivers driving towards each other headed for a single lane bridge from opposite directions. The first driver to swerve yields the bridge to the other driver. If they both refuse to swerve the result is a potentially fatal head-on collision. It is presumed that the best outcome for each driver is to keep driving while the other swerves away, because then the other is the ‘chicken’ and a crash is avoided. A crash is presumed as the worst outcome for both players. So each player is risking the worst outcome in attempt to secure the best outcome for himself.

In the light of project management a chicken game can be explained by actors not giving in and heading towards a ‘collision’ if neither backs down of or gives in. The other actor giving in is considered to be a ‘win’ in such a chicken game situation. This could be the case if actors have opposing positions on a matter and are not willing to move towards each other.

The chicken game has a few variations to the basic chicken as just described. They will be described in the following paragraphs.

5.3.1 War of attrition

The war of attrition variant differs in the way the conflict can escalate. In the chicken game the catastrophic outcome differs in kind from the agreeable outcome. The conflict is over life and death one could metaphorically say. In the war of attrition game the outcome only differs in the degree (Bishop & Cannings, 1978). So for instance in a boxing match where the contestants have to decide whether the prize of victory is worth the cost of deteriorating health and stamina.
5.3.2 Brinkmanship

Brinkmanship is actually not really a variant of the chicken game, but more a strategy related to it. In the brinkmanship strategy dangerous events (like a chicken game situation) are pushed to the brink of disaster in order to have the other actor give in. The strategy succeeds if the other actor backs down and makes concessions (Schelling, 1980).

5.3.3 Schedule chicken

The schedules chicken variant is one that originated from the field of project management and software development (Rising, 1998). In a schedule chicken game the first person to point out the impossibility of the task ahead is labelled a loser, not a "team player" (Beck & Fowler, 2000). And if in such a situation nobody points out the impossibility the problem will not be managed.

5.4 Prisoner’s dilemma

The prisoner’s dilemma is renowned in game theory circles. It is an example of a game that demonstrates why individuals often fail to cooperate, even when it is in their best interests to do so. The Prisoner’s Dilemma is a traditional and elegant model for studying decision making and self-interest (Golbeck, 2002).

In the classical definition of the game two men are arrested by the police for committing a crime. At the police station they are put in separate rooms for interrogation. Both are offered the opportunity either to betray the other, by testifying that the other committed the crime, or to cooperate with the other by remaining silent. So:
- If both betray each other, they will both serve 2 years in prison
- If A betrays B, and B remains silent, A will be set free and B will serve 3 years in prison (and vice versa)
- If both remain silent, they will both serve 1 year in prison on a lesser charge

In a prisoner’s dilemma typically the mutually most beneficial action (both confess) is dominated. This is due to a conflict between self-interest and mutual benefit. The prisoner’s dilemma mechanism can possibly provide understanding of an observed situation in which self-interest and mutual benefit are conflicting between actors.

5.5 Change and risk aversion

In his research Baumeister (2003) states that people are creatures of habit. Habit, routine, and automatic processes avoid the need to make choices and expend resources (Baumeister, 2003).

People like routine and stability in their work. The changes that a project might have on their work or work process can be perceived as a threat to them. Having to adjust or adapt might be perceived as a threat to their work related targets for instance. Operation rather has more capacity than more efficient but also more demanding processes. The first gives them more breathing room. This mechanism was brought to my attention in a meeting with Ms. Groot, project controller on behalf of the Project board of One-XS. She referred to this phenomenon as the aversion for change and risk by operational personnel. Risk aversion plays a role because they might feel that a different (temporary) situation is riskier because of potential operational failure.

Another factor that makes people more risk averse than rationally necessary is the tendency of people to feel losses more acutely than gains of the same amount (Lovallo & Sibony, 2010).
5.6 Choking when stakes are high

Standard models in contract theory state that higher stakes lead to greater effort and therefore performance is higher. In contrast to this substantive research in the field of cognitive psychology suggests that overly high stakes can lead to lower performance, known as “choking” (Kamenica, 2012), (Baumeister, 2003), (Beilock, 2010). An overly high stake situation is present when the stakes pass the tipping point of a certain person’s ability to cope with pressure. Supporting this theory is a mechanism described by Von Glinow & Albers Mohrman (1990). They describe a situation wherein there is loads of information that might be relevant, but fast decisions must be made to not fall behind with the project. This can be overly pressureful for a decision maker. When a person chokes this can be problematic for (the quality of) decision-making and the progress of the project.

5.7 Predicting

Decision-making can sometimes take a long time. Especially at executional and operational level it can take a long time before decisions on escalated matters are filtered back down. For practical reasons people will frequently predict the decision that will be taken and continue to work according to this assumption (Hughes & Murdoch, 2001). If the prediction turns out to be right there is no problem, in fact it is positive for project progress. But if a prediction turns out to be different from the decision made this results in abortive work, which is undesirable. And apart from the rightness of the prediction, this behaviour can be seen as an undermining of the formal decision making process and of the power and responsibility of the decision maker(s).

5.8 Learning

People have the ability to learn. And so actors will probably learn a lot during the course of a project. And most actors will have few or no expertise of all the project (technical) substance. During the process they will notice they have not got a clear view of their expectations. They are likely to adapt expectations, because of sophistication: by learning more about the substance they could get another view on the project. Many change requests will originate from this mechanism (Meredith & Mantel, 2010) (Dibble, 2001). Learning may cause a change in an actors’ position, wishes, interests, perception, and strategies.

5.9 Decision fatigue

In decision-making and psychology this mechanism refers to the deteriorating quality of decisions made by an actor after a long session of decision making. In decision-making theory it is described as a cause for making irrational trade-offs (Baumeister, 2003). A prime example are judges, who have shown to make poorer decision later in the day. Making choices is hard work that depletes an inner resource that seems quite limited (Baumeister, 2003). People can only really make a few serious choices at a time, and then the capacity for choosing has to recover and replenish before they are fully effective again.
5.9.1 Decision avoidance

Apart from resulting in poorer decisions this mechanism can also result in decision avoidance, in which case no decision is made at all (Anderson, 2003). Decision avoidance could also well be a deliberate strategy of an actor. For instance to avoid responsibility, accountability and possible blame, or even to sabotage. Avoiding decision has an uncollaborative, conflicting, and self-interested nature.

5.10 Group conformity

In group dynamics related research an important phenomenon is that of group conformity, or groupthink as it also called. This entails that people tendency to agree in group situations, regardless of their personal opinion or intuition (Stein, 2013). Fung (2013) describes that when team members are too cohesive, they will voluntarily conform to established norms or behaviours within the team, regardless of whether those norms or behaviours are negatively impacting project performance or team effectiveness.

Strongly related to this mechanism is conflict. Lack of conflict is a sign of over-conformity, resulting in groupthink (Nicholas & Steyn, 1975). According to Nicholas and Steyn it causes dullness and sameness, and results in poor judgement. They argue that some conflict is essential in project groups that solve complex problems. Conflict stimulates discussions and can enhance problem-solving.

In this mechanism one can say that there is too much collaboration, too little conflict, and hegemony. This results in ineffectiveness of teams and possibly bad decision-making.

5.11 Throw over the wall

This mechanism stands for uncooperatively handing over of work, information and responsibility to another party (Kerzner, 2006). It is known as ‘throwing stuff over the wall’. This can be done intentionally but also intentionally. Nonetheless it is an uncollaborative thing to do (Sprouse, 2010). This mechanism has an uncollaborative, careless, uncommunicative, and uninvolved character. It might also be used as a strategy when used deliberately.

5.12 Sabotage

The actions of an actor can be sabotaging for the project process. Sabotaging action are intentional actions to negatively affect the project and its process. Sabotaging can be done in many ways. For instance throwing over the wall could well be done with the intention of sabotaging the project process. Or assigning an employee that has no formal power to make any decisions to discuss a matter in order to delay the process. Many other mechanisms can have a sabotaging effect. But whether or not it is an intentional sabotaging strategy is another question. In that sense sabotage can have a bad influence on the relationship between parties.

5.13 Procrastination

Baumeister (2003) studied and describes the mechanism of procrastination. Although many people would claim that they do their best work under pressure of a deadline, his study concludes that procrastination is self-defeating. It has a short-term benefit of low stress when the deadline is not close yet, but when the deadline gets closer procrastination causes a lot of delayed stress. The study also
concludes that apart from the stress and health impact the performance itself is also badly affected (Baumeister, 2003).

## 5.14 Political games

In their book on organizational behaviour Huczynski and Buchanan (2007) describe several political games. They argue that power and politics are inextricably entwined and have an effect on human behaviour in organizations. Political behaviour is practical domain of power in action, through the use of techniques of influence and other tactics (Huczynski & Buchanan, 2007). In their book they describe the following types of political games: Authority games, power base games, rivalry games, and change games. These four types will be described in the next paragraphs.

All these games are strongly related to power, roles, collaboration, conflict, and strategy.

### 5.14.1 Authority games

There are two types of authority games: insurgency and counter-insurgency. Insurgency games are played to resist authority, while counter-insurgency games seek to counter such authority resistance attempts. **Insurgency** can range from mild resistance (such as intentionally not doing what is asked) to outright mutiny (such as organizing workers to sabotage their workplaces). Actors with authority then respond with **counter-insurgency** measures to reestablish compliance by making threats or increasing control over staff. Often, these games are unproductive for both sides and can lead to the use of more adaptive techniques such as bargaining and negotiation (Huczynski & Buchanan, 2007).

### 5.14.2 Power base games

These are of three varieties of power base games: sponsorship, alliance and empire building. All are played to enhance the degree and breadth of an actor’s organizational power. For example, the **sponsorship game** is played with superiors. It involves attaching yourself to an established or rising managerial ‘star’ in the company, in return for a piece of the action. You obtain recourses, backing or prestige by convincing that powerful company figure of your loyalty. Similar games may be played among peers, such as **alliance games**. Employees at the same hierarchical level agree in advance to mutually support each other, and gain strength by increasing their joint size and power. The riskiest power base game is **empire building**. An individual or group attempts to become more powerful by taking on someone else’s tasks and responsibilities temporarily, with the aim of holding on to these permanently. An individual or subunit may increase its power by attempting to gain control over budgets, space, equipment or any other scarce or desired organizational recourse (Huczynski & Buchanan, 2007).

### 5.14.3 Rivalry games

These are two varieties of rivalry games: line versus staff and rival camp. This class of political game is intended to weaken one’s opponents. In the **line versus staff game** the line managers in the company, who are responsible for the day-to-day operations of the organizational unit, come into conflict with staff employees who are supposed to provide them with specialist advice and information. For example, a production manager ignores the advice of a human resource advisor who is seeking to spread best practices and common working procedures, rendering the latter less powerful. A second variety is the **rival camp game** which occurs where there are departments with different viewpoint, expertise, goals and interests, and where it is easy to point a finger at one another. The departments
involved attempt to reduce each other’s power and raise their own by getting allies to support their own positions and reject their rivals’. Since the organizations success depends on departments working smoothly with each other, such rivalry creates disruption which affects performance (Huczynski & Buchanan, 2007).

### 5.14.4 Change games

There are two types of change games: whistle blowing and Young Turks. Both are played in order to either create organizational change or to block it. In the **whistle blowing game**, an organizational member secretly reports some organizational wrongdoing to someone outside, perhaps the media, in the hope of righting the wrong and bringing about changes. Such action can be taken through naivety or for moral or political purposes, such as to discredit a rival. In the **Young Turks game**, an individual or a group of rebel workers seek to depose existing power holders by engineering a ‘coup d’etat’. The players are seeking to institute far-reaching and permanent change by replacing the existing leadership or changing the strategic direction of the organization (Huczynski & Buchanan, 2007).

### 5.15 Excessive optimism

Excessive optimism entails the tendency for people to be overoptimistic about the outcome of planned actions, to overestimate the likelihood of positive events, and to underestimate the likelihood of negative ones (Lovallo & Sibony, 2010).

### 5.16 Overconfidence

This mechanism is about overestimating your skill level relative to others’, leading to overestimation of one’s ability to affect future outcomes, take credit for past outcomes, and neglect the role of chance (Lovallo & Sibony, 2010). This can be related to the arrogance mechanism, which also entails overconfidence characteristics.

### 5.17 Competitor neglect

The tendency to plan without factoring in competitive responses, as if one is playing tennis against a wall, not a live opponent (Lovallo & Sibony, 2010). This mechanism is about neglecting the position and perceptions of other actors. When this happens misunderstandings and conflicts are bound to happen.

### 5.18 Individual versus system rationality

In this concept a difference is made between individual rationality and the rationality of the process (the system as a whole, where the individual is part of). The system rationality can be seen as the bigger picture of the project or even the whole organisation. And individual rationality might conflict with this (Epstein, 2006). An individual might not always have eye for the system as a whole. Either because of self-interest or simply because he is not in the position to be able to. Also actors might have different perspectives of what the system as a whole is. For instance: What might be perceived as a minor process for a PM overlooking a whole project, could well be something extremely important for another actor who perceives that process as his whole system so to say.
This mechanism is strongly related to perception and interests, and can also be seen in combination with strategies.

### 5.18.1 Conflicting time rationality

A variant that seems valid and relevant to appoint in project management is conflicting time rationality. Different parties might have a different perception of the phase a project is in. If parties have a different perception of this misunderstandings and conflicting interaction can be the result.

### 5.19 Misaligned individual incentives

Incentives for individuals in organizations to adopt views or to seek outcomes favourable to their unit or themselves, at the expense of the overall interest of the organization. These self-serving views are often held genuinely, not cynically (Lovallo & Sibony, 2010). This mechanism can be related to the previous one: individual versus system rationality. The main difference is that in this mechanism a genuine goal of self-interest is present and this is not necessarily the case in the previous one. That mechanism is more explanatory for a situation, whereas this mechanism is much more a strategy of self-interest over general interest.

### 5.20 Blame game (finger-pointing)

This blame game mechanism is also known as ‘finger-pointing’, ‘scapegoating’, or ‘passing the buck’. People can have the tendency to blame everyone and everything else when things go wrong (Gifford, 2008). This can become more problematic if multiple actors blame each other. In that case it is very similar to the rival camp game described in section 5.14.3. Blaming can also be a strategy. Blaming is an uncollaborative, conflicting, distrusting, disrespecting way of interacting.

### 5.21 Covering your ass

Covering your ass is a tactic used by actors to share blame or divert blame should something go wrong (Mu & Jong, 2010). ‘Ass-covering’ is usually done in big projects where an actors may choose to avoid taking credit for doing a critical part of the project just in case it goes bad (Investopedia, 2014). This mechanism can be seen as a form of accountability avoidance. It is uncollaborative behaviour and possibly conflicting.

### 5.22 Segmentation

An organization is often divided (segmented) into different departments that have their own tasks and related goals. This segmentation is often functional. Departments often have their separate specializations and expertise’s (Op de Woert, 2013). Segmentation can also be geographical, making communication and involvement harder (Hinds & Mortensen, 2005). In general segmentation can make cooperation and communication more difficult and decreases shared understanding. Segmentation can lead to conflicts, misunderstandings, uncollaborative behaviour, and distrust.
5.23 Intermediate conclusion

In this chapter issue mechanisms are formulated. These mechanisms are a base of knowledge in order to give extra meaning to observations. It is not a goal on itself to observe these mechanisms, they have a supportive role in understanding the course of issue events.

An important notion is that they might not all be observed in the issue cases. In that case this does not necessarily mean that these mechanisms have no explanatory value. It only means that they have not helped in understanding the issue events studied in this research. They might well be of value in other cases or other environments in other researches. These mechanisms are a base of knowledge that could well be used in similar research. The complete list of issue mechanisms is shown below.

**Manager vs Expert**
- Arrogance
- Overconfidence
**Chicken game**
- War of attrition
- Brinkmanship
- Schedule chicken
**Prisoner's dilemma**
**Change & risk aversion**
**Choking**
**Predicting**

**Learning**
- Decision fatigue
- Decision avoidance
**Group conformity**
**Throw over the wall**
**Sabotage**
**Procrastination**
**Authority games**
**Power base games**
**Rivalry games**

**Change games**
- Excessive optimism
- Overconfidence
- Competitor neglect
- Individual vs system ratio
- Conflicting time ratio
**Misaligned indiv. incentives**
**Blame game**
**Covering your ass**
**Segmentation**
6 One-XS case studies

In this chapter the case studies will be reported. This entails step 4 and 5 of the research approach as was presented in section 2.5. The following sub question are central to this chapter:

5. How do issue dynamics manifest themselves in issue events in the execution phase of One-XS?

6. How do issue mechanisms manifest themselves in issue events in the execution phase of One-XS?

Before cases are selected, observed and analysed a general description of the One-XS project and its sub projects will be given. This will sketch the greater project context in which the issues take place. Then the set-up for the case studies will be given in order to substantiate the observation, reporting and analysis methods that are used. When this is done the selection of cases can be treated. Subsequently the selected cases will be described and analysed one by one. This will be done with information obtained from interviews and project documentation. And finally the cases are overlooked in a brief integral analysis, which will shed light on the value of the identified issue mechanisms.

6.1 One-XS

Before the case studies are reported the project of One-XS is described in this section. Figure 6.1 gives an overview of the complete project. This figure indicated the different areas that will be added to the terminal. In appendix D the project structure of One-XS can be found. This provides an overview of the important actors and sub projects in the project organization.

In order to realise its ambition remaining Europe’s preferred airport, Amsterdam Airport Schiphol will need to make changes in the way passengers undergo security checks in the Non-Schengen part of the airport. For security reasons all passengers and their luggage have to be checked at Schiphol. The
situation as it was before the project will be shortly explained, followed by a description of the changes that the One-XS project will entail.

### 6.1.1 Situation before One-XS

In the Schengen part of the terminal this is done centrally, before entering the lounges (lounge 1). In the non-Schengen part this is done decentralised at the gates. It means that people in the lounges (lounges 2 and 3) are not yet security checked. After going into the gate through the security checks they cannot return to the lounges. The One-XS project has to implement a central security in the non-Schengen area, before entering the lounges. In the current situation the Non Schengen area has 130 separate security lanes divided over the different gates as is shown in Figure 6.2 (the Non-Schengen part of the terminal is blue in this picture).

![Pre-CSNS: 130 security checkpoints](image)

**Figure 6.2 Pre One-XS security checks situation**

### 6.1.2 After One-XS

Central security is implemented because of three reasons:

- Passenger comfort and enabling nonstop security
- Efficiency (efficient use of security guards and equipment)
- Satisfy future European laws and regulations

In the current situation, all arriving passengers enter the lounges as well. The employees that need to be in the lounges do not have to be security checked. The consequence of central security is that the lounges, after the newly build security checks, will need to become a “clean area”. This means that all people (passengers and employees) that are in these lounges should be checked by a Schiphol “approved” security check. In the future situation, passengers from a destination where the security check is not of an approved level, will have to go through a security check before they can enter the lounges for their transfer. The passengers arriving from a country with approved security check
standards, will not have to be checked again (this is called one-stop security). The future situation with centralised security checks is shown in Figure 6.3. The number of security lanes will decrease from 130 to 50.

![Diagram of Schiphol airport](image)

**Post-CSNS: 50 security checkpoints**

*Figure 6.3 Post One-XS security check situation*

The only way to split the passengers of different flights is to put an extra level on the piers (see Figure 6.4). Through this extra level the transfer passengers from countries that do not have up to standard security checks are led to the GH building filter or the EF area filter before they can enter the lounges. The passengers ending their journey at Schiphol, will not enter the lounges at all. They will be led to KMar (Koninklijke Marechaussee) filters to enter the country. The terminal has to be adapted structurally in many ways to accomplish this new process. The added area is shown in Figure 6.4. As is shown in this figure, the D-pier will not get an extra level. This means that the D-pier will only be able to process clean flights in the future. The E, F and G Pier will be equipped to deal with both clean and ‘dirty’ flights.

A crucial aspect of the One-XS project is that during the construction, the daily operations of the airport keep on going. Especially in the execution phase this is a crucial aspect of consideration.

The preparations of construction started in December 2012, and the execution started around September 2013. The sub projects are contracted separately so there is a slight difference in the exact starting date of the execution. The project should be finished by June 2015.
As can also be seen in the project structure in appendix D the project is divided into a number of sub projects:

**Departure Filters 2 and 3:**
Another consequence is that people should be security checked after the check in. In the current situation, after checking in, passengers can proceed to the lounges after the KMar filters. In the new situation an extra process will be added, for which not enough space is available in the current terminal. By building a mezzanine above the check-in counters in departure hall 2 and 3 passengers will be led upstairs to the mezzanine after checking in. The KMar filters will also be placed on that level. After these two processes people will be conducted downstairs again into the lounges.

**GH building and extra floor on top of the G pier:**
The G-pier will get an extra level to conduct the passengers from unclean flights to security filters. There is not enough space at the root of the G pier to place these security filters. A new building, the GH building, will have to be constructed to accommodate these new security filters. In this building the passengers ending their journey in the Netherlands will go through KMar filters and on to the baggage reclaim. The transfer passengers will go to the security filters and enter the lounges.

**EF area and extra floor on top of E & F pier:**
The E and the F pier, will also get an extra level. Both unclean passenger flows will go to a newly built filter at the root of the E-pier. This area is complex, because it crosses many current processes. It is also technically complex, considering the construction methods.

**Gate buildings:**
On all VOPs (aircraft stands) new gate buildings will be placed. After passengers leave the aircraft
through an avio bridge, they will first enter the gate building. In this building the corridors can be changed. One will lead directly to the current pier corridor. This will be used for “clean” passengers that may enter the clean lounges without undergoing a security check. The other one will lead upstairs to the extra level. This will be used in case an aircraft contains “unclean” passengers, and leads them back to a security filter when transferring or to the baggage reclaim when ending their journey at Schiphol.

**Security filters:**
New security filters will be built on the mezzanines of departure halls 2 and 3, in the GH building and in the root of the E-pier. This sub project entails the design and construction of the security filters.

**Logistics:**
During the construction period, many processes will change. Furthermore, all the construction sites have to be prepared, which is an enormously complex task. The team manager logistics and his project team will be responsible. This sub project interfaces all the other sub projects and almost all daily operations.

### 6.2 Set-up and protocol

Before the actual case study can begin a set-up is made for the case studies. This will further substantiate step 5 of the approach: Case observations and analyses (section 2.5). The selected cases will be assessed according to the formulated issue dynamics ‘model’. The clarified mechanisms will give meaning to what is observed.

First the working method for the case observations will be explained and then the way of reporting and analysing will be presented and argued.

#### 6.2.1 Observations

In the case observations information is gathered through interviews and documentation. The goals of these observations are:

- To generally reconstruct the issue event (actors, issue, timeline, arrangements)
- To map the interactions between involved actors in situations related to the issue (nature of interactions, decisions, roles, positions)
- To discover the rationale behind actor behaviour in relation to the issue (interests, perceptions, arguments, strategies)

Most of the information is gathered by interviewing actors from different involved parties. Actors that were involved in an issue event have unique knowledge about how things happened. Most of this knowledge is not documented. In order to capture all the information given by the interviewees, the interviews were recorded (with the consent of the interviewees of course). Apart from not losing any information it also makes the interviewer able to fully concentrate on the interview (and not on taking notes).

**Orientation interview**
As a first step and in preparation to the in-depth interviews an orientation interview is conducted with an involved internal actor of the PMT. By doing this a first overview of the issue is gained and a selection
of relevant actors to interview is made. The protocol for these orientation interviews is presented in appendix F.

In-depth interviews
With the knowledge from the orientation interview the selected actors are interviewed. As also presented in the research approach in section 2.5 the issue dynamics (formulated in chapter 4), will be used as a model for observation. This will give structure to the case observations and a basis for formulating an interview protocol. The interview protocol will be strongly linked to the issue dynamics, since these are the aspects that are viewed in this study. The interview protocol can be found in appendix G. This protocol is not strictly followed per se, but mainly serves as a guideline. Some questions could be zoomed in on, or emergent questions could be asked in reaction to information given by a particular interviewee. This resembles a semi structured interview type, which offers room for manoeuvring from a rigorous set of questions. In contrast to the structured interview type this approach provides the opportunity to ask emergent questions varying from the script (Wilson, 2014). A full list of interviewees can be found in appendix I.

6.2.2 Case reporting and analysis

Most of the information is gathered through interviews with relevant actors involved in the issues. Due to time constraints the interviews were no longer than an hour. The interviewees have busy agendas and the time available for this research is also limited.

The issues will be observed on the issue dynamics components that are identified in chapter 4. These components will not form separate paragraphs by which the cases will be described and analysed in this chapter. To structure these observations in the report the case analyses will be structured as follows:

Case introduction
An introduction to the issue case will be given to sketch the scene of the issue. This will give the reader the information needed to understand the issue at hand.

Reconstruction
The reconstruction is the main part of the issue analysis. It will consist of four parts: The issue, the actors, the lead-up to the issue, and the response to the issue. In the reconstruction the actors, interactions, decisions, arguments, strategies, arrangements, and timing dynamics that are observed will be incorporated. Also the issue dynamics that are observed will be incorporated in this reconstruction. By presenting it like this instead of separate sections per issue dynamic and mechanisms a complete and more readable story is presented.

The reconstruction will also be made visual. This will aid in the understanding of the reconstruction for the reader by giving an overview of the issue event, and also serve as a summary of the issue event for quick reading. Figure 6.5 shows the format for the visualization of an issue reconstruction. The black line represents a timeline. Along this timeline different situations occur in the lead-up and in response to the issue at hand. These are divided by vertical red line representing relevant actions, decisions, agreements, arguments, strategies that separate the situations. Of every situation a short description is given in the box underneath it. The box where the issue is described is given a red border.
Mechanisms
In this section the mechanisms that are recognized in the analysed issue case will be summarized and elaborated on in more detail. This will provide understanding of certain situations, strategies and interactions that are relevant for the issue.

6.3 Case selection
Several issue events within the One-XS project are selected for observation and analysis. This is done by selecting issues from a long list of potential issues. The long list was created during the course of the study. The selection of cases was done in consultation with the project director of One-XS. He has a good overview of all the sub projects and issues that might be suited for analysis. The issue long list can be found in appendix J. It provides a short description per possible issue case.

6.3.1 Selection criteria
In order to select issue events a number of selection criteria are developed. These criteria are based on the objectives of this research.

Richness:
A richness of interactions and mechanisms is desired in the cases. So cases where this is the expectation are preferable. This way the amount of issue events to be observed can be limited, but still a fair amount of actor interactions and possibly issue mechanisms can be observed.

Information and documentation:
Relevant actors that were involved in the issue must be available for interviewing. Their unique knowledge is crucial for the reconstruction of the issue event. Apart from the knowledge of the
involved actors some documentation can also be present. In that respect a well-documented issue is preferable. However, this is not crucial for the selection.

**Execution:**
A selected issue must be an issue in the execution phase One-XS. So the issue and impact must be felt in the execution of the project. It might well be that when investigating the lead-up to the issue, events that happened before contracting (start execution) are relevant for a complete picture of the lead-up to the issue.

### 6.3.2 Selected cases

With the previously presented criteria in mind a selection is made together with the project director. The 4 issues that were selected from the long-list (Appendix J) are the following:

- Reversed screening GH building
- Work permits procedure
- Temporary facilities F2
- KLM in V2

No description of the cases is provided in this stage, this will be done in the sections dedicated to the issue. The issue cases will now be treated one by one.

### 6.4 Case 1: Reversed screening GH building

From the long list of possible issues to investigate the ‘reversed screening GH building’ issue is the first case to be treated. First the case will be introduced with some context information. Then the elaborate reconstruction of the complete issue event and all the observed issue dynamics and mechanisms will be presented. After the reconstruction the recognized mechanisms will be summarized and described more substantially.

#### 6.4.1 Case introduction

The GH building will have a double function. The first is to accommodate security screening of transferring passengers from the G and H pier. And the second is facilitate a passport control filter for passengers from the G and H pier that enter the Netherlands.

In addition to these two core functions so called ‘reversed screening’ (RS) became a requirement in the programme of requirements (PoR) ‘Security and border facilities’. It states that RS must be facilitated within the GH-building.

The essence of RS is that transferring passengers still have to undergo a security screening if they originate from an airport in a Schengen country where the security screening has not been fulfilled in accordance with the EU legislation (Article 15). This means that the screening is not up to standards and passengers cannot be allowed into the ‘clean’ terminal without a screening. One could call these flight ‘naughty’. However, the frequency of occurrence and the duration of this phenomenon is unpredictable. On top of the need for this kind of screening the arriving passengers may not be submitted to a passport control since they originated from a Schengen country. This is mandated by European legislation.

The requirement for facilitating RS stems from an EU enforced obligation for airports to facilitate the process. And the One-XS project was seen as a perfect opportunity to incorporate this process in. The
security department figured that the GH-building would potentially be the best place to facilitate this and therefore added it to their PoR as a requirement for the GH-building. The need for security screening together with the legislation that forbids passport control made more straight forward incorporations into the One-XS project impossible or less desirable.

6.4.2 Reconstruction

As a result of this case study a general reconstruction has been made to improve the understanding and paint a clearer picture. Figure 6.6 shows the visualization of the reconstruction.

![Diagram of Reconstruction Process]

Figure 6.6 Reconstruction reversed screening issue

First the issue and involved actors will be described and then the complete issue event will be described and analyzed in chronological order. This will be done according to the blue blocks, representing situations, in Figure 6.6. The blocks are given names that suit the events that took place.

6.4.2.1 Issue

The re-opening/continuing of the discussion on incorporating reversed screening in the GH-building is the issue when you look at the execution phase. The PM thought that with the approval of the plans and specifications the matter was resolved. But not long after the contract was signed with the contractor the discussion was re-opened.
6.4.2.2 Actors

Actors from the following parties are the most important actors involved in this issue: PMT and Security. They will be shortly described here.

PMT

The general role of the PMT is that of project manager. They manage the project, and subsequently the interaction with relevant actors. From the PMT the Team manager of the G/H sub project was involved in this issue.

Security

This was the most important stakeholder in this issue. Their task is to manage the operational processes related to security at the airport. Apart from this operational role they also fulfill an expert role on security within the airports organization. Their goal was to have RS incorporated in the One-XS project.

6.4.2.3 Lead-up to issue

To understand why the issue emerged one has to go back in time. From the interviews it became clear that the lead-up to this issue actually began as early as the initiation phase of the project.

Initiation

The involved parties all have their requirements and wishes. But especially the estimation made by Security that the solution for RS should be a cost neutral solution was important for this issue. They wrote this in their starting note. They thought this would be feasible because One-XS was still in the preparation phase and RS would only impact the designs in a minor way.

Discussions

There were regular meetings in which the matter of RS was discussed. But for a long time no agreement was made on how it would be facilitated. The discussions were about the way in which this would be facilitated in the GH-building. Security added to their PoR that RS should be facilitated in the GH-building. But they did not describe any functional requirements what so ever. So only the statement that it should be facilitated.

Looking at all the requirements that were set by different parties the PM realized that it would be impossible to comply with them all in a cost neutral way, like had been demanded by Security. The opinion of the PM was that RS should be facilitated by operational means. There was an endless discussion of operational vs hardware facilitation of RS. Hardware means that the facilitation of RS is incorporated in the designs. None of the actors was willing to give in and a chicken game like situation presented itself: not willing to give in, since that is regarded as ‘losing’.

Stakeholders give in

After a long period of discussions in which no common solution was found, the PM eventually came up with a design that complied with all of the requirements, but was extremely expensive (>1M€). So only the cost neutral demand was ignored in this plan. This was done to illustrate the absurdity and contradictory of the requirements laid out by the other actors, and especially the cost neutral demand by Security. The presenting of this ‘perfect plan’, as it is called in Figure 6.6, was a deliberate strategy used by the PM. The goal was to have the other actors back down and accept the plans without RS incorporated in them. This strategy is described in the issue mechanisms chapter as brinkmanship (section 5.3.2). The situation was pushed to the brink by the PM. The plan would entail drastic changes
to the base plan that was made to accommodate the core functionalities that were intended for the GH-building. The other actors were shocked by the sight of this ‘perfect’ plan. As a result they backed down and realized that this (such an expensive solution) was not what they ever wanted.

Start execution
The PM thought the matter was resolved and the base plan, without RC in it, would be sufficient. The notion that it did not incorporate the requirement of facilitating RS was added to the plan. This notion was said to be approved by the involved stakeholders. This final design was tendered to a contractor. But within months later the matter of RS was re-opened by Security, which is in essence the start of the issue when it comes to the execution of the project.

The re-opening of the matter was something the PMT did not see coming. They were confident that the issue was closed and that the plan would be executed as it was contracted. This can be seen as excessive optimism of the PMT. Security clearly had a different perception of the situation and the status of the matter. They felt it was still an unclosed chapter and merely wanted to continue the discussion. The actor of security indicated that whether or not the project is in execution and the plans without RS were contracted does not concern him (conflicting time rationality). This is a very self-interested attitude (Misaligned individual incentives).

6.4.2.4 Issue response

Several events happened in response to the issue. These will be discussed now.

Develop ‘light’ solution
As described Security re-opened the RC matter. The PM was not amused by this. Apparently there was a misunderstanding and difference in perspective on the status of the RC matter.

In this stage a non-operational solution will have to be filed as a change request. But first a solution must be suggested and argued. Security actually took the lead in formulating alternatives and subsequently a preferred one, which would be filed as a change. In the process it consulted with actors from other operational parties to take their demands into account and to make sure that they were on board with the eventual solution. They had some troubles with this because it seemed that the other parties, in contrast to security, had laid the matter to rest.

Security, which has an operational and expert role in general, also takes on the role of manager in this situation. This way the typical troubles with interaction between managers and experts are avoided. Communication and interpretation problems are less likely to exist with only operational oriented parties (experts) at the table. There were two main reasons why Security took this upon itself: Content and Interests.

Content wise they (and the other stakeholders) are the ‘experts’ so they know exactly what and how they want it. PMT would otherwise be forced to ask for their advice anyways, they indicate.

On top of that they had a great interest in requesting a change, since they did not agree with the plans as being executed.

Eventually a preferred alternative was developed. This is called a ‘light’ solution because it can be seen as a stripped down version of the ‘perfect’ plan presented by the PM previously. Several variants have been studied for this situation. Ultimately the ‘Alternative entrance bus station GH-building’ was the most preferred option. This option entails the realization of a separate entrance in the GH-building for arriving Schengen passengers originating from article 15 violating airports. The main characteristics of this variant are as follows:

- From the separate entrance the passengers are led directly to the baggage reclaim, with which an
unwanted passport control is prevented.

- Transferring passengers can undergo a passport control at a separate KMar desk. This way they do not form an obstacle for the regular flow of Non-Schengen passengers that arrive through the GH-Building.
- This separation also makes sure there are no cross-flows possible. Non-EU and Schengen passenger flows are not desired to mix.

For an overview of this solution see appendix H.

Formulate change

The preferred alternative would be requested as a change. But first a cost estimation had to be carried out by advisors, in order to give the desired change a price. The alternatives assessment with the cost estimation of the preferred alternative were then filed for a change.

Price negotiations (parallel)

As is indicated in Figure 6.6 a side track was taken before the change was requested. The PMT filed the preferred design change to the contractor for pricing. By doing this the PMT was anticipating the approval of the request (predicting mechanism). For the sake of project progress they took the risk of filing the change to the contractor before the change was officially approved. Eventually the change was approved and the anticipation was not a fruitless endeavour, as can be the case when predicting.

At the moment of writing this, the negotiations are still going on. The price that the contractor offers is much higher than the estimated price in the change request. The PM indicates that this is no surprise, since the contractor has no competition for this work.

6.4.3 Mechanisms

There are many mechanisms that can be recognized in this case. But some are more evident and important for the issue at hand than others. First the main mechanisms will be presented; they give most meaning and explanation to the observed. And then less evident and important mechanisms will be described.

6.4.3.1 Main mechanisms

Chicken game

In the discussions (second block in Figure 6.6) the involved actors were not willing to give in. This went on for a very long time. This can be seen as a chicken game. Parties are not willing to give in and giving in is seen as losing. If the other gives in you get what you want. The difference with a classical chicken game is that the actors are not competing for the same 'prize', but for opposite results.

Brinkmanship

The discussions in the preparation phase were going on for a very long time and a solution was not really in sight. As described above parties were not willing to give in. This is when the PM decided to make a point by presenting the other actors with a plan that incorporated all of their requirements and wishes. This would mean a drastic change to the original plans with large cost (>1M€). This made the other parties back down and eventually agree upon a design with no extra facilities for reversed screening. This can be seen as a Brinkmanship strategy, where an actor pushes the situation to the edge (the extremely expensive plan) in order to make the other actors back down. Initially this worked successfully for the PM, and the plans were contracted without RS added to them.

But not long after the strategy was thought to have succeeded the matter was opened again. An
operational actor still wanted the RS added to the plans and had no regard for the situation of the project.

**Excessive optimism**
The PM was overly optimistic about the success of the brinkmanship strategy. He did not consider the option that the operational actor would re-open the matter.

**Conflicting time rationality/ individual versus system rationality**
Different actors can have a different idea of the phase a project is in. This was clearly present in this case. PM thought the matter was closed and by contracting this was sealed and the contracted plans will be built. But an operational party was not aware of this and also did not care whether the project is in execution or preparation. They see the matter as still going on, regardless of the phase the project is officially (and contractually) in.

**Misaligned individual incentives**
The operational party indicated that they do not care what the status of the project is. They had a very self-interested attitude, and did not think about the interest of others.

### 6.4.3.2 Peripheral mechanisms

**Change and risk aversion**
Security were averse to operational solutions. A changed operation is something they do not want. They rather have everything arranged so that the operational process is not effected. And an operational solution raises the risk of them failing to comply with standards. If things are facilitated they do not have to change their operational process. This has a lower risk of operational process failure.

**Manager versus expert**
A PM cannot argue with the operational expertise of an operational actor. This makes it hard to counter their arguments against operational solutions. This problem was present before the brinkmanship strategy was used, and not present in a later stage when Security also took on a project management role.

**Competitor neglect**
One can interpret the perception of the PM that the ‘case was closed’ as a neglect of the perception of other actors that this was not the case. Not much later this neglect backfired and ultimately resulted in a change request during execution. This neglect is strongly connected to excessive optimism mechanism and to why the brinkmanship strategy did not hold.

**Predicting**
In anticipation of the formal approval of the change the PM went ahead and asked the contractor to price the additional changes. These changes were not yet formally approved so this was in anticipation of the decision on the change. The change was approved later on, so the prediction was fruitful for the progress of the project.
The next case is the issue that emerged with the work permits procedure. The standard requesting method appeared to be problematic for the EF and gatehouses sub projects. First the case will be introduced with some context information. Then the elaborate reconstruction of the complete issue event and all the observed issue dynamics and mechanisms will be presented. After the reconstruction the recognized mechanisms will be summarized and described more substantially.

**6.5 Case 2: Work permits procedure**

Schiphol has its own internal work permits procedure. Arrangements have been made with the municipality so that not everything that happens at Schiphol needs to be approved by the municipality. This is regarded as undesirable by both parties. To introduce the case and to sketch the context of the issue the permits requesting procedure at Schiphol will now be described in a general way.

Before project related work is executed certain permits need to be requested. This is a process that can be divided into two main processes: Technical and Operational. The technical part is about the ‘what’ and the operational part is about the ‘how’ of the work to be done. This procedure is shown in Figure 6.7 below. It all starts with the filing of a work request to TRE, the asset owner of the terminal at Schiphol. And once this request is complete and meets the requirements that are set it is approved by TRE and a work permit (WV) is granted. This means that technically the work may be realized as proposed.

After the technical permit is obtained an operational work plan is submitted for approval. The approval is given by testers from the different operational parties that are effected by the particular piece of work. A work plan describes the process of changing the existing situation into a new situation, including different phases that are a part of this process. Especially for One-XS the transition to the new situation has many phases and temporary situations along the way.

For the operational permit a distinction is made between work in the terminal or on airside. Both require a different operational permit. A WOT (Werk Overleg Terminal) when it is work in the terminal and a WCA (Werk Coördinatie Airside) if it is work on airside. On top of this distinction it is important whether or not the work has an interface with the baggage system. If this is the case a COP (Centraal Overleg Planningen) request must also be done. In this issue only the WOT will be looked at, since almost every permit involves a WOT for the One-XS project.

Operational requests are linked to an approved technical WV for the work at hand. Without technical approval the operational permit will not be granted. The process involves multiple reviewing moments with possible needs for complementation by the contractor, who is responsible for delivering the work plans. If all is well and approved the work can be executed. An important aspect is that a timespan is given to the permit. This makes the coordination with the planning extra crucial.
Figure 6.7 Work permits procedure

6.5.2 Reconstruction

From the conducted interviews a reconstruction is made of the work permits issue. Figure 6.8 gives a general visual representation of the course of the issue. The issue will be described in the next paragraph, followed by the lead-up and the response to the issue. But as can be seen in Figure 6.8 this case ends with another issue. This is because the issue is not completely resolved and there are still...
complications in the interaction between TRE and the PMT. This will be described at the end of the response paragraph.

First the issue and involved actors will be described and then the complete issue event will be described and analyzed in chronological order. This will be done according to the blue blocks, representing situations, in Figure 6.8. The blocks are given names that suit the events that took place.

### 6.5.2.1 Issue

The time-consuming application process for work permits that was in place caused for many problems in the execution of the Gatehouses and EF sub projects. Lots of time was lost with the extremely sequential character of the process. And before a WV and WOT is granted, the actual execution of the work cannot officially start. This was a frustrating situation for the PMT.

In the eyes of the PMT, the sequential nature of the WV and WOT procedures is undesirable and problematic. The procedures did not go well with the building team arrangement for the EF area. This
means that there is no detailed final design before the execution starts, like there is with traditional contracting arrangements. So there is no WV for the complete final situation. This will be designed in steps during execution. This caused for conflicts with the permits procedure of TRE. They want complete designs for approval. But the PMT can only deliver it per step of the building process, and not a complete design for a certain location. Interviewees indicate that the building team arrangement was chosen out of lack in time. And the idea was that lost time could be made up for this way. And all actors understand that this decision was made, but also agree that it is not an ideal situation. And with the Gatehouses sub project there were delays because the complete technical permit process had to be gone through for every separate gatehouse, which is a lot of work. And since the gatehouses are almost identical this seemed unnecessary to the PMT.

The PMT blames TRE (asset owner of the terminal) for the delays. In their opinion TRE is not able to test the permit requests in time. And when certain work is planned to be executed and the permit threatens to be late the PMT is forced to escalate last minute. This puts a lot of undesired pressure on the situation.

On the other hand TRE does not agree with them being to blame and blames the PMT. There are several topics on which the PMT and TRE have disputes or disagreements. These topics will be presented as the lead-up to the issue. Standpoints, arguments, and perceptions of the PMT and TRE are given to describe the disagreements.

### 6.5.2.2 Actors

Actors from the following parties are involved in this issue: PMT and TRE.

**PMT**
The PMT encountered great complications with the standard work permit application process for the Gatehouses and EF sub projects. The desire was to make additional agreements to change this process for these sub projects. The PMT wants an efficient work permit process that does not cause delays to the execution of the project. And they want less dependency of TRE, the terminal asset owner.

**TRE**
As asset owner of the terminal TRE is the party that coordinates and reviews the work requests (WA). TRE has a delegated authority from the municipality to approve permits.

Actors from the PMT and TRE are interviewed for this issue since the issue is between these parties.

### 6.5.2.3 Lead-up to issue

The conflict between TRE and the PMT will now be presented by a number of topics on which they do not agree or have a different perception. These disputes (blame game) will demonstrate the uncollaborative, untrusting, and conflicting nature of interaction between the two (chicken game, rival camp game, segmentation).

**Responsibilities and trust**

In the eyes of the PMT, TRE wants to check way too much. The PMT thinks that this is not necessary, and feels TRE is making it hard on itself by wanting to check almost everything. And this is more than they should feel responsible to check in the eyes of the PMT. If the PMT were an external organization they could understand it, but PLUS is an internal project department, they argue. The PMT has the feeling that TRE has little trust in the PMT, and that this can and should be higher.

TRE indicates that it has its responsibilities (towards the municipality for instance) and therefore wants
to check exactly what goes on in the terminal. They are responsible for what happens in the terminal during and after the project. After the lifetime of the project is important to them because TRE is owner of the asset and, unlike other stakeholders, feels the depreciation and operational costs. Interviewees of TRE indicate that in the past their trust has not always been respected. So they, for instance, find out at the completion of work that certain requirements are not met at all. This makes them hesitant to trust and give more space to a project team. This is a vicious circle, and it does also exist on a more general level between TRE and PLUS.

**Capacity**
The blame game continues on the subject of capacity. They both give blame to each other and have several arguments to substantiate their claims. The PMT feels that TRE has not anticipated well on a huge project like One-XS. They cannot handle the great amount of permit requests, because they have too little capacity. In the eyes of the PMT this matter has a large relation with the responsibility discussion, because the needed amount of capacity rises if TRE wants to be more involved and wants to review everything. But the PMT feels that at TRE this relation is totally out of balance; TRE wants too much responsibility and has too little capacity to want and take this responsibility. TRE does not agree with the PMT. Although they cannot deny that they are understaffed to deal with the work load now and then, they argue that they are not to blame for this. They feel that you cannot demand from them that they manage on the peaks of work that might come from One-XS. It would be different if they had received a clear planning from the PMT of when large requests will be filed, but this is not the case. Without that TRE cannot anticipate on (often ad-hoc) large workloads. TRE indicates that they have work for 1 employee the one week and for 10 the next. They cannot employ on this fluctuation. TRE argues that One-XS needs to plan better so that capacity can be managed accordingly, or at least better. They do not agree that they are to blame for the delays. In fact they blame the PMT for a lack of planning.

**Gold-plating**
This refers to the image that TRE has, about demanding ridiculously expensive equipment and alternatives. And they know very well that they have this image. Not only the PMT or PLUS has this image of TRE, but pretty much all the Schipol divisions share this according to the TRE interviewees. TRE argues that this image is totally out of place. They argue that most of the time they translate operational demands from others into functional demands of the hardware. If, for instance, PS demands no downtime of escalators from TRE, then TRE wants a very reliable (and expensive) escalator. Most ‘gold-plated’ demands do not originate from the needs of TRE they say. However, there are these kind of demands that come from TRE, which are mostly to do with energy reduction.

**Cost perception**
On top of this there is also a more general perception of costs that is misaligned. A PMT has three main performance criteria: Time, Cost, and Quality. But Time and Cost are the criteria that are most important to them in practise. In the eyes of TRE the TCO (Total Cost of Ownership) or LCC (Life Cycle Costing) should be leading in business cases and projects. This starts with a client that often does not think about the costs in a sufficient way (individual versus system rationality). They don’t feel them in the long term, like maintenance for instance. In relation to the TCO being very important to TRE the quality criterion is very important. Higher investments with higher quality assets can be profitable when one looks at the TCO. This focus on quality is in conflict with the focus of a PMT on time and
costs. This focus is however very understandable, because they often have strict time and cost demands from their client and other operational stakeholders. But nonetheless it is often in conflict with that of TRE.

**Misunderstanding lead time**
There is a misunderstanding about the maximum lead time of 15 workdays that TRE demands for the reviewing of a WA. The PMT claims that this time is very often exceeded. TRE indicates that the period of 15 workdays starts when the request is considered to be complete, and not when the request is first filed, like the PMT seems to think. The TRE coordinator indicates that the requests are often not complete and additional information is requested. This misunderstanding does not help the process and the relationship between the PMT and TRE.

**Priority perception**
The PMT is under the impression that their requests are given priority requests from other projects. But the TRE coordinator indicates that this is not true at all. Other requests have the same priority, but One-XS does have special attention. TRE for instance has on average about 2,5 full time employees dedicated to One-XS. But as mentioned, in the capacity dispute, this is not enough at times.

### 6.5.2.4 Issue response

**One-XS internal**
Within the One-XS project team the notion grew that the work permits process was problematic for the EF and Gatehouses sub projects. An internal discussion took place on how to improve this process. The desire (goal) was to be less dependent on the capacity of TRE to assess the permits in time. A new method which cuts out a lot of dependency on TRE was formulated in order to propose to TRE management.

**SM discussion and ‘unofficial’ agreement**
Discussions on senior management level between delegates from the PMT and TRE resulted in an agreement about a change in procedure for the EF and Gatehouses sub projects. An important fact is that this was and is in no way a formal agreement. These are matters that were agreed upon for the EF and Gatehouses sub projects:

**EF sub project:**
- There will be four main WV’s for the four large areas in this sub project (E-pier, EF-area, F-pier, and BC-lounge).
- Additional information for these main WV’s will be filed separately and linked as a sub WV to a main WV. These sub WV’s will be filed through the normal permits procedure of TRE.
- All the operational permits are requested on the basis of one of the main WV’s. This makes the technical and operational requesting process more parallel.
- TRE will get insight in the work plans and the possibility to give comments on them. These comments will primarily be on temporary situations and (fire) safety.
- An operational permit can be requested on the basis of a concept work plan.

**Gatehouses sub project:**
- There will be one main WV for all the gatehouses (based on the permit of the first gatehouse).
- For each new gatehouse only the deviations from this main permit are described in a sub WV that is linked to the main WV. This sub WV is assessed through the normal WV procedure.
- All the operational permits are requested on the basis of the main WV. This makes the technical and operational requesting process more parallel.

**New method**
The PMT goes ahead and applies the new ‘more parallel’ permits procedure. The first two operational gatehouse permits (WOTs) applied for with this changed procedure do not cause the project any troubles and delays. The PMT is very satisfied with how this turns out.
With this new method the PMT feels that the procedure becomes much more workable. And on top of that it provides a better oversight of what will be filed in the future. This is also positive from the TRE perspective since they had a hard time with the unpredictability of permit requests.

6.5.2.5 New issue
As mentioned briefly this case actually ends in a new issue situation. How this situation came about and what is done in response will now be elaborated on.

**Still struggles**
Although it seems as if the issue is solved for One-XS there are still some struggles that come forth from the new procedure. TRE and the PMT are still not on the same page when it comes to the procedure.

**Effect of involvement in work plan process**
Part of the unofficial agreement is that TRE gets insight in the work plans of the contractor. However there is a difference in interpretation on this matter. The PMT says that this is facilitated so TRE can see and review the work plans made by the contractors in an early stage and be more informed. The PMT hoped that this would increase the trust of TRE in the quality of work delivered and have them loosen up a bit and step away from wanting to check everything. And TRE is not an official tester of the WOT they add.
TRE however does not see it this way, and wants to keep control. This has to do with the long execution period and often also the many temporary situations along the way to the final situation. Most work is not as simple as just going from existing straight to the final situation. This is due to the operation going on 24/7 during the work. So TRE wants to have something to say about all the temporary situations as well. They would like to see a technical paragraph in the operational plans as well.
From the perspective of the PMT the idea of building up trust and having TRE let go of some responsibility did not really work out as planned. The perception of what the involvement meant was different for both parties.

**Incoherence within TRE**
The interviewed external advisor to TRE agrees with the PMT that TRE should not desire to check and control everything. But within TRE this is not shared by everyone (misaligned individual incentives). So there is a great difference in trust and desire to check everything within TRE. The PMT indicates that there is a lot of difference between the wishes and the desire to control between different TRE employees. This incoherence makes that the PMT wants to be even more independent of TRE.

**Incoherence within PMT**
Within the PMT there is also some incoherence. The permits coordinator, who totally agrees with the new permits procedure, would like to see a formal agreement with TRE. Formalizing them will tackle the incoherent practical implementation of the agreement within TRE. But the project director and
other project managers do not feel this need to formalize (misaligned individual incentives). They have personally closed the issue and moved on. They care for the progress of the project.

**Need for a WV in time**
There is another difference in the interpretation of the new parallel method. One-XS wants to start the work as soon as the WOT, which is linked to a main WV, is approved. Regardless of whether the sub WV that exactly states the technical work to be done is approved yet or not. And, as they indicate, TRE will always receive the sub WV request, but maybe not in time for the work to be started. The PMT is not prepared to wait on this. TRE wants the sub WV to be fully approved as well before the work can start. All interviewees from the PMT say that this is simply not going to happen. One-XS sees the WV as a burden, and does not want to wait on it to be granted to start the work when a WOT is already approved (competitor neglect). And TRE sees the WV process as a safeguarding of continuity and safety.

**One-XS just goes on**
The One-XS permits coordinator indicates that, in their opinion, TRE is still hitting the brakes a lot, like also indicated in the section above. This is something the PMT does not want and cannot afford in this stage of the project. So the PMT has decided that it is going to go on as they think is best for the project, whether TRE likes it or not. Things have gone well for a few Gatehouses already, so why not continue like this? That is their view on it. The end result is what counts for the PMT, and if that means going on with their plan and disregarding TRE if needed so be it.

TRE feels that their interests are disrespected and undermined by the actions and decisions of the PMT (Competitor neglect).

### 6.5.3 Mechanisms

There are many mechanisms that can be recognized in this case. But some are more evident and important for the issue at hand than others. First the main mechanisms will be presented; they give most meaning and explanation to the observed. And then less evident and important mechanisms will be described.

#### 6.5.3.1 Main mechanisms

**Blame game**
One-XS and TRE throw numerous blames back and forth to each other. This does not help in making progression with the project and in the (long term) relationship between the divisions TRE and PLUS at Schiphol.

One-XS blames TRE for the delays it suffers due to the work permits procedure. And TRE blames it on the PMT for a lack of planning. This is a very uncollaborative way of interacting with each other, and does not portray any trust between them.

**Segmentation**
The segmentation between TRE and the PMT (and PLUS) clearly has a negative influence on the situations in this issue event. There is little trust, misunderstanding, blaming, communication is laborious, and there is conflict. The general relationship between the departments is not collaborative, and segmentation plays a large role in all of this.

**Rival camp game**
What is happening between TRE and the PMT closely resembles the description of a rival camp game.
This is a type of rivalry game, which is one of the political games described in section 5.14.3. The departments of TRE and PLUS have different viewpoints, expertise, goals and interests. Therefore it is easy to point a finger at one another. Which is what happened and is still happening.

**Chicken game**

Parties rigidly hold on to their responsibilities and principles, and keep blaming each other for the difficulties that exist between them. This does not work well, and actually everybody loses with this. TRE and the PMT played a chicken game and neither swerved to the side to avoid a collision. Metaphorically you could say that perhaps the PMT had a bigger and stronger car, which makes them feel less of the collision, and were able to drive on after the crash.

**Misaligned individual incentives**

There is lots of misunderstanding between TRE and the PMT, but also with the other divisions within Schiphol. This strongly effects the execution of projects. One-XS is a very large project so the impact for Schiphol is great. Also within TRE and within One-XS there are different views and incentives:
- SM has agreed upon the new method, but since it is not formalized at a daily practical basis it is not always respected by individuals. Depends a lot on the person of TRE one deals with according to PMT actors.
- Within the One-XS team the permits coordinators would like to get the new method formalized, but higher management of the project does not feel this need.

**Individual versus system rationality**

TRE feels that other departments should also embrace the LCC mind-set and use it to make better decisions for Schiphol as a whole. They feel that the individual ratios of other departments are not beneficial for the whole of Schiphol, and that a LCC mind-set would be mutually beneficial for the whole of Schiphol.

**Throw over the wall:** Operational parties demand things from TRE and One-XS that feed the blame game. Also they demand things that are not taking into account LCC, which is very important to TRE. LCC takes into account costs that other parties do not feel, but TRE does. So they just throw a demand over the wall without fully knowing what this does to the investment and especially the LCC.

Apart from the operational demands that both TRE and the PMT have to deal with TRE has its own demands and requirements. They throw this huge amount of unfiltered information over the wall at the start of a project. This does not help the project and TRE to a good start and does not provide a base for a smooth cooperation.

**Peripheral mechanisms:**

**Choking when stakes are high**

The fact that many times things had to be rushed and permit approvals were put under pressure or had to be filed under great time pressure has not done any good to the quality of the project and the process. Great amount of information must be analysed in very little time and the chance of ‘choking’ and making bad decisions rises. In those moments the most important drivers for the PMT are cost and time, and quality is what becomes less important. And as indicated by TRE quality is very important to them, so the situation is also undesirable for them from that point of view, and not only for the PMT who wants to go on with the project.
**Procrastination**

To reinforce the previous mechanism the mechanism of procrastination is also partially present. A part of the mechanism that is not present in this case is the deliberate or conscious procrastination. But the situation and the effect that is described as a result of procrastination is very much present. Stressed and rushed work and decisions are in no way good for the delivered quality. It is even bad for the health of people and in this case it is also bad for the relationship between TRE and the PMT and the ‘health’ of Schiphol as a whole.

**Competitor neglect**

The argument of One-XS to just do it the way they have in mind and not wait for a WV if it is not granted in time for the execution of work can be seen as a neglect of TRE. It is almost an undermining of the existence of permits and the interests of TRE.

The reasoning for this is that One-XS does not want to be dependent on TRE when it comes to reaching their own performance criteria, which are strongly focussed on time and costs. A strategy like this might not backfire (but it could) during the lifetime of One-XS, but the longer term relationship between TRE and PLUS is not helped by situations like this.
6.6 Case 3: Temporary facilities gate F2

The third case is about temporary facilities that could be accommodated in the gate area of gate F2. This gate was going to be out of operation for the larger part of the project, so the gate area in the terminal would have no use during this time.

First the case will be introduced with some context information. Then the elaborate reconstruction of the complete issue event and all the observed issue dynamics and mechanisms will be presented. After the reconstruction the recognized mechanisms will be summarized and described more substantially.

6.6.1 Case introduction

Gate F2 is out of use because the EF area is being extended and F2 is the first gate from the root of the pier and is very close to this building site. Also a temporary walking bridge is built over the aircraft stand of gate F2 to accommodate passenger flow rerouting during construction on the KLM lounge in the root of the F pier. So the F2 gate area in the terminal has no operational function during this time.

This makes it an ideal area for temporary activities to be housed. There are many facilities that need to be temporarily housed during the execution of One-XS. So the opportunities a space like the F2 area provides are very welcome and valuable for the project.

There are several facilities that were planned to be temporarily housed in F2 at one point or another, but the composition of which facilities changed a few times. For this issue the following two are important to introduce:

**Silence Centre (SC)**

This is a religious centre for all religions; a place for prayer and meditation. Their old centre was in the area where the security filter for the E and F pier will be constructed. And since their new location is would be realized long after their old centre was planned to be removed a temporary relocation is required.

**Customs offices + Global Blue (VAT reclaim)**

This combination provides service to non-EU passengers to reclaim the VAT they paid during their stay in the Netherlands. This service has to be temporarily moved from their location in Departure hall 3 to make way for construction work to be done in that location. Afterwards they will return to departure hall 3, in a slightly different location.

6.6.2 Reconstruction

As a result of this case study a general reconstruction has been made to improve the understanding and paint a clearer picture. Figure 6.9 shows the visualization of the reconstruction. Striking are the two parallel events.
First the issue and involved actors will be described and then the complete issue event will be described and analyzed in chronological order. This will be done according to the blue blocks, representing situations, in Figure 6.9. The blocks are given names that suit the events that took place.

### 6.6.2.1 Issue

The issue in this case starts with the wish of the PM of V2/3 to temporarily house the VAT reclaim in the F2 gate area. This conflicted with the plans that are in place for the F2 area at that time, because the PM of V2/3 wanted the spot where the SC was planned. Before he wanted the spot in the F2 area other locations were looked at, but all were undesirable or impossible.
### 6.6.2.2 Actors

Actors from the following parties are involved in this issue: PMT, Silence Centre, PS.

**PMT**
Within the PMT several actors are involved in this issue: The Team manager of the V2/3 sub project, a PM of the EF sub project, and the PM for temporary facilities. They all have a project manager role.

**PS**
PS has an operational role at the airport, and a client role to the project. Are only involved in making a decision on two occasions, but was an active participant in this issue.

**Silence Centre (SC)**
The Silence Centre is passively involved in this issue. They have no direct power what so ever. But they can lobby their interests with Passenger Services (PS).

Not from all stakeholders people were interviewed because not all were active in relation to the issue at hand. All interviewed actors are part of the PMT. This is because the issue primarily plays between different project managers within the PMT. The other parties are indirectly involved in this issue.

### 6.6.2.3 Lead-up to issue

**VAT needs to move**
The VAT reclaim service has to be temporarily moved from their location in Departure hall 3 to make way for construction work to be done in that location. The temporary housing of the VAT reclaim was an urgent matter, because construction work was already planned to have started in the area where the VAT reclaim was going to be moved from. So this work was delayed.
The TM of V2/3 investigated options for temporarily facilitating the VAT reclaim in the terminal. After some other options were undesirable or impossible the TM for V2/3 wanted the spot that was appointed for the temporary facilitation of the SC.

### 6.6.2.4 Issue response

As can be seen in Figure 6.9 the relevant developments in the response to the issue were not sequential of nature. Multiple parallel developments were observed. This adds to the dynamic character of the issue event.

**VAT vs SC**
With the wish of the PM of V2/3 to gain the spot in which the SC was planned a conflicting situation was created, hence the title of this paragraph: VAT vs SC.

Although there is a conflict, the responsible PM’s are not really in conflict. The PM of EF is very cooperative and wants to help her colleague.

**Alternatives SC (parallel)**
Coincidentally, the PM for EF was doing a study on alternative locations for the SC. So there was a chance that the SC would be moved out of the F2 area plans. Several options, using existing facilities, on the D-pier were investigated. These options were much cheaper and easier than building a complete SC almost from scratch in the F2 area. And with the added wish of locating the VAT reclaim in F2 another positive consequence (for the project as a whole) of relocating the SC arose.
So the VAT reclaim could have the spot of SC if one of the alternatives that would be presented to PS were approved of (Prisoner’s dilemma). So the PM of V2/3 would have to await this decision. This is how it was communicated and agreed upon between the PM’s. It was out of their hands at that point. The decision made by PS would decide whether the VAT reclaim could keep the spot or be kicked out again.

**No VAT reclaim**

Eventually PS decided that they wanted the more expensive and complete SC in the F2 area (individual versus system ratio). This meant that the PM of V2/3 was budged out of the F2 plans again and returns to the problem of having no temporary location. He was not happy with this, but accepted the situation. He acknowledged that the PM of EF had been very collaborative throughout the process, and that he had to accept that the SC stayed on their planned spot in F2.

**Alternatives VAT reclaim (parallel)**

In anticipation of the decision to be made by PS on the SC alternatives the PM of V2/3 went to the PM of temporary facilities and informed him of the situation. The possibility of PS deciding to want the spot in F2 made them start a parallel process in anticipation of the decision (Predicting). This is similar to the prediction mechanism in which the outcome of a decision is predicted and action is taken in anticipation of this decision. The risk in this is that abortive work is done if the prediction is wrong. The PM for temporary facilities went ahead and investigated possible alternatives for the VAT reclaim in case the SC would not be relocated. So when the news came that SC would stay in F2 some investigation for alternatives was already done. So in that sense the anticipation had paid off. After the alternatives for the VAT reclaim were analyzed the most preferred one was chosen. In this solution the VAT reclaim will also be housed in the F2 area, by taking some space from the temporary PRM lounge which is already realized in the F2 area. This solution is a compromise. And also it could be that the VAT reclaim has to move from that location again before their new permanent location is realized. But this is a chance the PMT is willing to take. If that happens they will deal with it then. For now this provided a much needed solution.

**Details**

So when the locations were decided the next step was the detailed design. In that phase there were some difficulties within the PMT on who would be managing this for the VAT reclaim. The PM of V2/3 wanted to hand it over to another PM, who in turn handed it over to the PM for temporary facilities because she already had an overload of work. But then the PM of V2/3 did not agree with this and wanted it to be handed back to the other PM again. Then she indicated that she really did not have the time to take this on as well. So finally they all agreed that the contractor would be making the designs, and that the PM for temporary facilities would coordinate this with the contractor. So he handed over all the information to the contractor, who will work out a detailed design. All of this fuzz over who will manage the designing only caused more delay for the V2/3 sub project.

**Impact decision**

The impact for the EF sub project is that the realization of the temporary SC is also delayed a few weeks. The SC was planned to be closed at the old location in order for other work to be started there. So the delay of the temporary SC had effect on the EF sub project planning.

The PMT very easily assumed that this would mean that the SC would simply be closed for a few weeks because the temporary SC was not going to be finished in time. But the PMT was not granted a WOT
(operational work permit) for the work to be done because the SC would be closed for two weeks and this was unacceptable from a strict operational viewpoint. So the PMT indicates they cannot accelerate anymore to move the SC two weeks earlier. So their argument was that if no permit (WOT) was provided for the closing of the vide the EF project will be delayed. So PS would have to decide what they wanted, in the end they are the client. So either a two week delay on the vide work and the EF sub project but no downtime of the SC, or two weeks of no SC and no delay on the EF sub project ( brinkmanship). Eventually PS decided that the SC would be closed for two weeks and that the work on the vide would start as planned and should be granted the WOT to do so.

In this situation the PMT made the assumption that they could decide in the best interest of the project. But they were reminded that they are not the party to decide on this. Whether or not the decision is very logical or easy, they still do not have the power to make such a decision. The client does.

### 6.6.3 Mechanisms

There are a number of mechanisms that can be recognized in this case. But some are more evident and important for the issue at hand than others. First the main mechanisms will be presented; they give most meaning and explanation to the observed. And then less evident and meaningful mechanisms will be described.

#### 6.6.3.1 Main mechanisms

**Prisoner’s dilemma**

In this issue a prisoner’s dilemma can be observed. But in this variant it is not about prison time but obtaining a resource: the available space in F2 for a temporary facility.

In a prisoner’s dilemma typically the most beneficial action is dominated. This is due to a conflict between self-interest and mutual benefit. In this issue event the mutual benefit for the Project managers and the project as a whole would have been that the SC was moved to a different location. This would have been cheaper and easier for the PMT and give room for the VAT reclaim as well. But instead of a typical prisoner’s dilemma where the mutual preferred solution would be dominated by the self-interest of the two project managers it is dominated by the self-interest of a third party: PS. And in this case they had the power to decide on agreeing with a different location and they chose not to. So in fact the self-interest of PS dominated the potential mutual benefit for the PMT.

**Predicting**

In anticipation of the decision to be made on the SC location, already alternatives were investigated for the VAT reclaim. The prediction turned out to be legitimate, and by having anticipated valuable time was saved. On the other hand the work could also have been abortive.

**Brinkmanship**

The PMT did not get a WOT (permit) to execute critical work of the EF sub project because the SC would be closed for a few weeks. In order to get PS to approve this WOT the PMT pushed the situation to the brink one could say. They presented the impact of not receiving the permit to higher management of PS, which made them decide that the permit should be approved, and by doing this they accepted a downtime of the SC. This strategy is said to be successful when the other actor backs down and makes concessions, and this is exactly what happened in this occasion.
6.6.3.2 Peripheral mechanisms

**Individual versus system rationality**

In this case the overall benefit of moving the SC out of the F2 area and to a cheaper and easier location would have been logical from the overall project point of view. But PS (and the SC) decided otherwise from their personal perspective. Their individual ratio was different than the overall project ratio. But they are in a position to make a decision and the PMT is not.
6.7 Case 4: KLM in V2

The fourth and final case revolves around additional wishes of KLM for departure hall 2. These wishes eventually resulted in a few changes.

First the case will be introduced with some context information. Then the elaborate reconstruction of the complete issue event and all the observed issue dynamics and mechanisms will be presented. After the reconstruction the recognized mechanisms will be summarized and described more substantially.

6.7.1 Case introduction

In departure hall 2 a mezzanine is built to accommodate a large new security filter for departing passengers. This mezzanine will be built over the existing check-in area of KLM. Figure 6.10 shows a schematic cross section of departure hall 2. When the work for V2 was contracted the KLM check-in area was not part of the scope. But although it is regarded as out of the scope at that point the check-in area is effected by construction of the mezzanine. Pillars to support the mezzanine are built for instance. And the aesthetics will change with the lower ceiling, having impact on the check-in area.

![Figure 6.10 Cross section V2](image)

6.7.2 Reconstruction

With the information gathered general reconstruction has been made to improve the understanding and paint a clearer picture of the issue event. Figure 6.11 shows the visualization of the reconstruction.
Figure 6.11 Reconstruction KLM in V2 issue

First the issue and involved actors will be described and then the complete issue event will be described and analyzed in chronological order. This will be done according to the blue blocks, representing situations, in Figure 6.11. The blocks are given names that suit the events that took place.

### 6.7.2.1 Issue

KLM still wants additional work added to the One-XS project in the execution phase. They have the right to want this, but then it has to be filed as a change in order to become part of the project. So this issue became a change. The PM of V2/3 also indicated this to KLM; Fine if you want things to be done, but I am not to decide on this. If you want something you should discuss this on the right level. Senior management level. KLM wanted to take a good look at their check-in area since work is going to be done in V2 anyway. Their plans were about the interior design of their check-in area in V2.
6.7.2.2 Actors

Actors from the following parties are involved in this case: PMT, KLM, and PS.

PMT
For the larger part of the issue event the PMT was not an active participator in the issue. Only in a later stage, when a decision had been made the PMT was actively involved in executing what was decided on by other parties.

KLM
KLM was the initiator of the issue so to say. KLM wanting additions to the work in V2 is the issue at hand from the PMT viewpoint. KLM has a client, user and business partner role. The main actor involved from KLM was of senior management level. He had both internal discussions and discussion with Schiphol actors about the different wishes for the V2 area. He had to manage both sides.

PS
From PS also Senior Management was involved in this issue event. PS has an operational role at Schiphol, and a client role in the project.
In response to the issue KLM and PS had many interactions on the matters at hand. First on the substance of the additional wishes and later on the costs of the agreed upon additions.

6.7.2.3 Lead-up to issue

The lead-up to this issue starts in an early stage of the preparation of One-XS because during the interviews it became evident that developments in that stage were indirectly of influence to the issue at hand.

KLM not involved
During a period of the preparation phase of One-XS KLM had completely refrained from participation. This is due to a conflicting relationship between KLM and Schiphol on high line management level. This means that there is no interaction with the PMT during that time. This is a form of uninvolvement and uncollaborative interaction. Interviewees did not seem to be surprised of this uninvolvement by KLM. They indicate that this happens now and then between KLM and Schiphol. Their relationship seems to have its ups and downs.
In that period preparation went on and the PMT did not look back. This meant that towards the end of 2012, when KLM started to participate again, they had lots of catching up to do with all the design progress that was made in their absence. And while they were catching up the preparation was going forth as well.

Discussion in preparation
So when KLM participated again they had a really hard time getting back in the process of participating. One could say that KLM sabotaged the project, but maybe they sabotaged themselves the most by refraining from participation for a while. Now that they were back in the game they had some things they wanted different from designs that had been made in the meantime. Their biggest point in this discussion was that they wanted an exclusive escalator in their premium area for premium passengers. This ended up as a change in the preparation. So this is a separate issue from the issue in this case, but it is very much related to the occurrence of the issue being assessed here. Because at a certain moment the V2/3 sub project had to be tendered. And at that time only the Casco related designs had been discussed and finalized. This was mainly due to the discussions with KLM which resulted in the change.
And more indirect the refraining also caused this situation. This period after KLM participated again was hectic and stressful (procrastination), a lot was discussed and KLM wanted changes, which does not help the progress of the project.

Before the tendering the interior designs were not discussed. In the eyes of the PMT everything that was not tendered was outside of the project scope. This was visualized in Figure 6.10 by the red dotted line. KLM has a different perception, and starts thinking about the interior design of their check-in area around that time (individual versus system rationality).

### 6.7.2.4 Issue response

#### KLM makes plans

KLM makes interior design plans for their check-in area. In the eyes of the KLM actor in question this is a logical next step after Casco designs have been finalized. For these designs they hired their own architect. There were internal discussions on what will be part of their design plan. Many internal KLM department and actors wanted things to be done to the area when they heard the area is up for redesigning. So there are many ideas, and the coordinating actor of KLM indicates that there was a lot of internal discussion on what would be desirable and realistic.

#### Discussion on plan substance

At a certain point (end of 2013) KLM went to PS with their ideas. This resulted in discussions on the substance of these plans. At first there was also some internal resistance within PS, they were not pleased with this extra complexity in a very busy time of the project (start of the execution) they are the client of. But they realized that KLM is entitled to have desires and wishes, and that they are a client of PS.

PS thought that KLM wanted too much. PS wanted to tone down these ideas. At senior management level the plans were discussed. This was mainly between managers from PS and KLM. The involved actor of PS indicated that KLM had many ideas, and that he really tried to make KLM realize that this was too much. And he also added that he felt that the position he took with this was not even purely driven by the interest of PS but he really felt that some ideas would also be undesirable from a KLM standpoint. Overdoing it (blue check-in desks for instance), and putting branding on everything cannot be something KLM should want he felt. He felt that using this strategy of trying to think with KLM instead of taking a firm standpoint against their plans helped them realize that some plans were too much and that they would have to keep it simpler. This strategy seemed to have had the intended effect.

Apart from this PS also reviews the wishes of KLM with their set of guidelines, principles and rules. PS simply cannot allow everything because then other airlines want the same amount of branding as well for instance. PS feels it has to draw a line somewhere (individual versus system rationality).

On the other hand the KLM actor indicated that he had already filtered out ideas he felt were unrealistic or undesirable, because he felt that he could not ask too much to be changed at once because this might provoke major resistance from PS and Schiphol in general. So in this sense the two parties seemed to have had very cooperative attitudes. But still PS thought that KLM wanted a lot, so there was a lot of discussion on the substance of the plans by KLM.

After a period of discussions there are several plans that are agreed upon. This is purely on the substance of the plans, and not yet on who is going to pay for them.

The agreed upon plans were:
- New monitors above the check-in desks
- Blue LED lighting across the edge of the mezzanine
- Branding logos in the check-in area

**Discussions on scope and cost**
When an agreement is reached on the substance of a plan by KLM the next step is to discuss the costs. Simply said: Who is going to pay? There was quite some discussion on this matter. KLM came with an initial proposal for the cost allocation. This proposal suggested a lot of things to be paid for by One-XS or PS. Their main arguments for this were that One-XS should compensate KLM for the branding that was lost due to the project, and that the check-in area is part of the scope of the project but was just not discussed in the preparation phase due to a lack of time.

PS did not agree with this, and had the opinion that KLM should pay more than they proposed. The standpoint of PS in this is that Schiphol pays only for the functional necessities, and not for extra and special wishes. And off course if due to the project some branding is effected, this should be compensated. So on that matter KLM and PS agree.

PS tried to play this game as purely as possible, because they have to be able to justify the decisions that are made on cost allocation. Both internally (PS and Schiphol) and towards other airlines. Just like with the substance they have to draw lines, because other users (airlines) will want the same treatment as KLM. So for PS to pay for something, it must be necessary or compensating for something KLM loses due to the project.

Eventually KLM and PS came to an agreement on the cost allocation. Percentages that each party would pay per part of the plan were agreed upon.

**PMT and KLM work ahead (parallel)**
When the substance of the plans was agreed upon by KLM and PS the PMT did not await the formal procedures of a change request, and went ahead with the plans (predicting). They made test setups for instance for the LED lighting that would be realized in the edge of the mezzanine. At the moment of writing this report they are down to the fourth test setup for this LED lighting. KLM is not pleased yet with how it looks. According to the PM of V2/3 there are many different KLM actors that take part in the discussion about the details. This process delays the V2/3 sub project. Without the whole branding hassle, as the PM of V2/3 calls it, the mezzanine would have been finished already. PS also has some concerns with the LED situation. How many more tests are there going to be? And who is going to pay for these tests? All these tests are not incorporated in the cost of the change that was requested. So at a certain point someone has to pay for these. The PS actor also indicates that it is quite frustrating to see that against their advice KLM went with the blue LED lighting plan of their own architect, and now when they see the test set-ups they seem to not be very enthusiastic about it (learning).

There also was one matter on which the PMT and KLM were a bit premature in their decision to work ahead on. The PS actor indicated that re-arranging of the self-service check-in machines was not agreed upon by PS yet. But because they already executed the plan PS felt that they were forced to take it with in the cost discussion. Apart from this matter the PS actor was very positive about the way the PMT reacted on the extra plans and worked ahead.

**Change request**
The change is officially requested by PS on behalf of KLM, because officially KLM cannot file a change. PS represents KLM, after all it is a client of them. The change was discussed and approved in the Project
board on June 25th 2014. The agreement states that the costs are €126,000 for the project and €251,000 for KLM.

6.7.3 Mechanisms

There are several mechanisms that can be recognized in this case. But some are more evident and important for the issue at hand than others. First the main mechanisms will be presented; they give most meaning and explanation to the observed. And then less evident and important mechanisms will be described.

6.7.3.1 Main mechanisms

Predicting
The PMT and KLM went on and started executing the additional plans before they are formally approved. This way a lot of time is saved.

But in one case the PMT and KLM were premature in their decision to work ahead of a decision. The difference was that this plan was not agreed upon in terms of substance by PS. And by executing this plan, the PMT and KLM left PS no choice on this matter.

Learning
When making and discussing their plans KLM was convinced of the blue LED lighting design made by their own architect. Although PS indicated they were not a fan of this plan the KLM wanted it anyway. But now that they have seen it in a number of test set-ups they do not seem pleased with how it turns out in practice. It seems as if KLM was not able to really imagine how the design would look in reality, and now that they can really see it they are less enthusiastic.

Manager versus expert
Linked to the learning mechanisms just described is the manager versus expert mechanism in this issue event. The KLM manager was not able to understand or imagine the designs made by their architect in such a way that they would know how it would turn out in reality. The expert (their architect) provided them with a plan that looked great to them on paper. And they followed the experts view.

6.7.3.2 Peripheral mechanisms

Individual versus system rationality
PS had to draw a line on what they could allow KLM and what they were willing to pay for. KLM wanted a lot of things and also wanted the airport to pay for most of this. This is out of self-interest. But PS has to keep in mind a much larger rationality; the influence on the rest of the airport and other users that would want the same treatment as KLM. PS does not blame them for trying though.

Procrastination
When KLM participated in the project process again there was lots of work to do in little time. This resembles the effect that procrastination describes: stressful last-minute work, which negatively effects the delivered quality of the work. Whether or not it really was deliberate procrastination by KLM is debateable. One could argue that by refraining from participating in the project a stressful situation when they participate again was to be expected. But either way the situation was an undesirable one for all involved.
Sabotage
The refraining from participation can be seen as sabotage. By doing this they hindered the project progress, because when they participate again they wanted changes to the designs that were made in their absence. If they had been involved during that time the process would have been more efficient. It did not seem as a targeted sabotage towards One-XS, but more the result of a general dispute on high level between KLM and the airport. Nonetheless the result is undesired for the project.

6.8 Intermediate conclusion
In this chapter the identified dynamics and mechanisms have been investigated in four issue cases in the execution phase of the One-XS project at Schiphol airport. In this chapter the largest part of the objectives of this research have been addressed. The case reconstructions and mechanisms analyses can be seen as one of the main deliverables of this research. For every case the lead-up and the response to the selected issue are reconstructed and analysed. The reconstructed issue events are build up as multiple situations that are related to each other. In these situations issue mechanisms are recognized and discussed. This zooms in to the separate situations that are present in the issue events. So the findings and links that are made with theory are very much situational. In the next chapter the research will ‘zoom out’ again in attempt to formulate more general and abstract findings. The situational descriptions and the recognition of mechanisms greatly serve the (practical) objective to paint a clear picture of issue events and raise situational awareness and understanding of project managers. It also served the scientific purpose of shedding a different light on issue events and exploring the value and applicability of issue mechanisms.
7 Integral view

In the previous chapter the cases have been analysed separately. And within the cases many different situations have been observed and analysed. In this chapter an analysis is performed over the whole of the cases: an integral view on the cases. Figure 7.1 visualizes this principle. This has the main function of recognizing overarching phenomena from the detailed and situational case observations in the previous chapter. One could say that this chapter brings the analysis back to a ‘higher’ or more general level. The following sub research question is leading in this chapter:

7. What scientifically valuable generalities can be observed throughout the case studies?

![Figure 7.1 Integral analysis concept](image)

In the next sections different generalities that are found from the integral analysis are presented and elaborated on. First several determining factors will be identified and discussed. These factors are seen as general factors that have great influence on the development of issue events. After the factors are discussed the most evident and important fields of tension will be reported on.

7.1 Determining factors

When integrally analyzing the case studies several factors can be identified as the most determining factors for the development of issue events. These will now be presented and discussed one by one.

7.1.1 Segmentation

Throughout the cases it can be observed that segmentation is a very important factor for the development of issue events. The airport organization is very much segmented and it is a factor that is permanently present. It was also recognized as an issue mechanism in chapter 5. But when overlooking the case studies and the context of an airport terminal project it can be identified as an important contextual factor for issue events. It is very much a general factor, and less of a situational mechanism. In that sense it is ‘promoted’ from being a situational mechanism to a general determining factor.

7.1.1.1 Function of segmentation

There is a functional division in specialist departments within the airport organization. This division exists from functional and organizational motives. It brings structure and hierarchy and makes the diverse tasks manageable. All these divisions and departments have their own tasks, interests, goals, performance criteria, resources, roles, and power.

In a large organization it seems inevitable that there is strong segmentation. Many very different and
often specialist tasks have to be carried out to run the airport, and also to manage terminal adaptation projects at airports. In order to carry out these tasks a segmented focus is needed.

7.1.1.2 Difficulties of segmentation

On the other hand segmentation also provides a situation that feeds the existence of problematic interactions. Specialized knowledge is hard to share. Segmentation in an organization makes the cooperation more difficult and decreases the shared understanding. One could call this a ‘segmentation dilemma’ between the function and necessity of segmentation and the difficulties of segmentation that have their impact on projects and issue events. With segmentation come different drivers and mind-sets. For instance the asset owner is very much driven by cost and quality criteria and the PMT is mainly cost and time driven. But also within these drivers the mind-set can be different. The asset owner, for instance, has a TCO mind-set on costs and other departments (and the PMT) do not look at costs from that same mind-set. But one could for instance argue whether or not a universal mind-set on costs is desirable and even realistic. Having different views on matters also has its function. As some conflict can also be positive for the performance of organizations and projects.

7.1.1.3 Understanding and respect

So segmentation is present in the airport organization. And as described above it is functional but also causes difficulties in projects and issue events. Very important related factors are understanding and respect. Since segmentation is present for a reason it is important to try to minimize the difficulties as described above as much as possible. For this to be realized it seems crucial that there is understanding of and respect for the position and perspective of others, and also for the broader picture. If understanding and respect is present segmentation is less likely to cause difficulties.

7.1.1.4 Communication

In addition and in relation to understanding and respect, communication is an important factor related to segmentation. Sharing of knowledge, interests, perceptions and rationality can break down the degree of segmentation. Metaphorically one can say that the hard lines between segments can be softened or bridges can be made between segments by communication. Without communication strong segmentation will keep to exist and possibly only become stronger. With this the chance of problematic interactions in projects and issue events rises.

7.1.2 Perception and rationality

Perception is a very important factor for the behaviour of actors. In many situations it is determining for their behaviour. Positions, choices, decisions, and other actions are based on the perception of reality. Rationality is strongly related to this perception. An individual’s rationality is based on its perception, since that is how that person sees reality. Perception was also indicated as one of the issue dynamics in chapter 4. In many observed situations and issue mechanisms (especially related to rationality) it is a very important factor.

There is not one shared perception or rationality. And the goal should not be to create one. But more awareness of the inevitable differences in perception and rationality seems crucial in project management. Especially in an operational terminal environment, in which for instance the operational actors have a lot of power, their perception and rationality is very influential.

For example: In case 1 the operational actors perception of the status of the issue together with their rationality of time (project phase) made them re-open the issue (from the PM perspective). It would have been valuable for the PM if he knew the perception of the operational actor. Or at least have the
awareness that a different perception of the situation is very much possible. This stresses the importance of communication. Without communication other perceptions are hard to ‘detect’.

### 7.1.3 Trust

Trust is an important and fundamental factor for the interaction between actors. Trust is typically a long-term phenomenon, and is not gained over night. Trust is regarded as a relational fundament for efficient and effective issue- and project management. And especially in the airport environment with long-term relationships between stakeholders the building of trust is something that is very crucial. On the one hand the long-term character provides for the possibility to build up the trust, since it is not usually gained over night. But on the other hand the possibility of damaging the trust between stakeholders is also very much present. Bad past experiences, for instance, can result in distrust and can hinder project progress. In the case studies (especially case 2) the importance of trust became very clear. It is an unsubstantial matter that can complicate a situation and take the focus away from the substance of the matter.

### 7.1.4 Roles and responsibilities

In large airport terminal projects there are a number of typical main roles and responsibilities. These have been identified and described earlier in the report. The roles and responsibilities have a strong relation to the segmentation of the organisation, since different departments have their own roles and related responsibilities. At Schiphol the roles and organisational structure related to projects are defined according to the STAP method, which is almost identical to the renowned PRINCE2 project management methodology. So the main roles and responsibilities are actually pretty standard and clear within the project structure. This means that actors relate to each other in a certain way (in general). And because this is the case some mechanisms will be generally present. The manager versus expert mechanism for instance will inherently be present because of the permanent presence of roles that have this character: departments with specialisations (experts).

On top of the presence of general roles there can be a difference in the interpretation of a role. Project managers, for instance, can have very different ways of fulfilling their role. And different approaches have different effects in different situations. A PM can be very facilitating or very directing for instance. And an expert can for instance use its specialist knowledge strategically or be very serving to the project. It is important to acknowledge the ranges that exist in role interpretation. In the next section on fields of tension significant role interpretations will be addressed in relation to the tensions.

### 7.2 General fields of tension

Significant fields of tension that can be observed throughout the cases will be presented and discussed. Opposing matters (the tension) are discussed and analysed. This is done to argue the situations and the different layers that exist in them. This has the function of arguing generalities and putting things into perspective. Things are not always very clear or black and white, and there is hardly ever one simple truth or answer. But discussing the matters contributes to the understanding of actor behaviour in issue events. More understanding of these fields of tension and the aspects that play a role in them can be valuable for project management.
7.2.1 Self-interest versus General interest

Throughout the issue cases a tension is present between self-interest and general interest. This field of tension will be discussed in this section. First the self-interest will be elaborated on. Then the concept of the general interest is handled. Then this section will continue by stating the relation to the prisoner’s dilemma game. And finally the role of the PM in all of this is discussed.

7.2.1.1 Self-interest

In a large terminal adaptation project the PMT is confronted with many actors and their rationalities, interests, positions, and views. This is inherent to the segmented character of the airport organization. But also external stakeholders (like KLM and contractors) have their segmentations and endless self-interests within their organizations.

It is fairly easy to focus on one’s own interests and views and to optimize within your own scope and rationality. Only ‘thinking within your own segment’ one could say. Throughout the cases one can see that strong individual and department drivers exist. Different self-interests can and will often be conflicting or not aligned to each other. Related to segmentation these self-interest have their function (functional conflict and task optimisation for instance) but also cause difficulties. As mentioned a certain ‘right amount’ of conflict is desired for better project and organizational performance.

7.2.1.2 General interest

In projects a constant tension exists between self-interests and the general interest. In theory the general interest is what would ideally be strived for. But the problem is that this is easier said than done. In principle the general interest of the airport is the most important interest for the whole organization one would say. The same goes for other external organizations. So all together there are many overlapping general interests at an airport and related to large airport terminal projects. These general interests can influence the way in which actors behave in many ways.

But within organizations it seems impossible that every division or actor thinks or acts in the general interest of the organization. As mentioned, the organization is segmented and many self-interests, perceptions and rationalities drive the behaviour of actors.

From small to large scale situations there will always exist a general interest. And this is a very theoretical statement, because when you think of it in a practical way it is very hard or impossible to clearly formulate the general interest in every situation. And the question is whether you should actually want to formulate or know the general interest in every situation. Probably not. And one could also argue that the presence of segmentation and different self-interests that can conflict serves the general interest of the organization. It causes conflicts and raises the need for discussions and negotiations. This happens frequently in issue events and in projects in general.

7.2.1.3 General prisoner’s dilemma

The general interest can be interpreted as the mutual benefit in the prisoner’s dilemma. The prisoner’s dilemma can be elevated to an overarching mechanism that is present throughout the case studies. In smaller situations in the issue events the prisoner’s dilemma was hardly observed. The reason for this might be that when looking at details in reality a very theoretical concept such as the prisoner’s dilemma is less likely to exist. But when looking at the underlying principle of the prisoner’s dilemma (self-interest versus mutual benefit) this can be observed as a very evident and important general mechanism.

The ‘pure’ prisoner’s dilemma is very much a theoretical and for project management maybe even an
unrealistic game. The theoretical prisoner’s dilemma assumes that there is no communication possible between the players. And it also has a certain and clear benefit of cooperation. That is not the reality of projects.

Generally in project management communication is possible (it may not always be present though), and the mutual benefit (general interest) is not as clear. The general interest is harder to formulate or imagine, is vaguer, and is more uncertain. These aspects might make the original prisoner’s dilemma more complex, but they do take the game out of the controlled ‘laboratory’ so to say and put it in a realistic project environment.

One might even go as far as saying that (large terminal) projects are an ‘endless’ accumulation of prisoner’s dilemmas. This could be written as a formula: \( \text{Project} = \text{PD}^n \)

The complex reality of project management is coupled with a fairly simple concept here. And by doing this it makes it more graspable and sheds an understandable and different light over project management.

7.2.1.4 Role of the PM in this field of tension

Part of the task of a PM is to manage the stakeholders and their interests, demands and perhaps also wishes concerning the project. This puts the PM right in the middle of the field of tensions, including its own interests. On top of the rest of the organization and external parties, also the PMT and PM have self-interests.

It is the task of the PM to best execute the project according to the wishes of the client, while incorporating as much of the different interests of the stakeholders into the project. End of the day the PM is ‘merely’ an executer of the interests of the client and other stakeholders that are involved. The business case of the project is formulated on a high level in the airport organization. From that perspective the goals of the project are likely to be beneficial to the airport organization as a whole. But along the way to the implementation of the new situation and business case there are many situations which are not in the self-interest of actors and divisions. Managing the interests during the erratic and even unpredictable road towards project completion is one of the main tasks of the PM during project execution.

7.2.2 Substantial versus relational conflict

In the case studies many conflict situations are observed. Two main aspects play a role in this: the substance of the matter and the relationship between parties. The ‘battle’ over the substance can put pressure on the relationship and vice versa. So relational difficulties can also put pressure on the substance of the matter at hand. This tension will now be elaborated on. First substantial conflict is described, then relational conflict is added to the discussion. After that the levels in conflict are handled, and finally the role of the project manager is argued.

7.2.2.1 Substantial conflict

On a substantial level it is already difficult enough to achieve a solution or agreement through constructive dialogue, even when for all parties the substance of the conflict is clear. It becomes more difficult when it is not clear among involved actors what the substance of the conflict is exactly. This is strongly related to the perception and rationality as described.
7.2.2.2 Relational conflict and the conflict ‘switch’

Apart from or in relation to a substantial conflict there may also be relational conflict. Purely substantial matters are generally handled with mutual respect and professional attitude. If matters are or become relational then this tends to overrule a professional and collaborative attitude. It seems that distrust and disrespect shift a problem, discussion, or any other situation away from the substance it is about. This was very evident in case 2 in which a lack of trust, respect, and understanding is a very fundamental conflict between parties that is not easily resolved and makes it very hard to resolve the substantial issue at hand. In the other cases there was no fundamental distrust or disrespect. In those cases the focus did not ‘shift’ from the substance to a more personal and relational level.

7.2.2.3 Levels in conflict

To put the tension into more perspective it can be described to have different levels. The most basic level is the substance level: “what are we not agreeing about?” The highest level is the relational level of conflict: “who decides?”, “who sets the rules?”, “I am not working with you anymore!” And in between there is a level of procedural conflict: “what do the rules and procedures say?” This distinction in three main levels is very important because it seems impossible to solve problems that play at a higher level, at a lower level. Disagreement on the rules or procedures are not solved by solving the substantial conflict (the conflict on the permits procedure in case 2 is not solved by resolving a conflict on the content of a filed permit request). And it also seems pointless to discuss the rules or procedures if relational problems exist and parties are, for example, convinced that the other party is not going to respect these rules and procedures anyway. The perfect example can be found in case 2, in which the asset owner and the PMT discuss the permits procedures conflict while a higher level relational conflict (distrust, blaming etc.) exists between them.

7.2.2.4 Role of the PM in this field of tension

In general the role of a PM is to execute a project and make decisions within boundaries set by the project board (client). In this field of tension this translates to dealing with conflicts in an efficient way in order to keep the project on track. Ideally conflicts are only present on a substantial level, which can be difficult enough already. In the best interest of the project and the organization higher level conflicts are undesirable. But when conflicts elevate to a higher level it is important to tackle them at that same level or else they will continue to exist. It is valuable for a project manager to be able to recognize the level(s) on which a conflict is present and has to be tackled.

It is also important to realize that a certain amount of substantial conflict is functional in projects. It prevents groupthink and stimulates criticism and innovation. Making trade-offs between interests is an essential part of managing a project, and is functional on a substantial conflict level. The other levels of conflict are less desirable and functional.

7.2.3 Project ‘manager’ versus operational ‘expert’

Throughout the cases one can see the presence of manager versus expert situations. In fact due to the segmented character and the size of the organization they are inherently and almost permanently present. In that sense it is not only situational but also a very general mechanism.

In the classical theory on manager versus expert the expert is a subordinate to a manager. And typically the expert is hard to manage for the manager due to a gap in knowledge and the characteristics of an
expert who wants autonomy for instance. In the operational airport environment the situation is somewhat different, and so a variation to the mechanism can be seen. From the viewpoint of the project and a PM a special kind of expert is present in airport terminal projects: the operational expert. The main differences are that this expert is not a subordinate to the project manager and that the PM can be seen as an expert (on project management) within the airport organization as well. The operational expert actually has formal power, whereas the classical expert gains or strives to gain this informally by using its specific knowledge advantage. An operational actor has a double ‘advantage’ in the airport environment, being an expert with formal power. In case 1 this became very evident when the PM thought to have broken down the operational experts and their standpoints with a brinkmanship strategy, but because of the power the same expert has as an operational actor the matter returned to the table later on.

7.2.3.1 Challenges of an operational project context

With this power comes a trend that can be seen throughout the cases. Operational parties seem to come back on decisions and agreements easily. In the airport environment this almost seems ‘normal’. Throughout the cases the operational actors and divisions often have little regard for the project situation. This is also linked to the self-interest versus general interest tension, in a way that this is a very self-interested attitude. But as also explained in the self-interest versus general interest field of tension a self-interested attitude or standpoint is very understandable. One cannot always demand or expect people to think beyond their self-interest. But from a PM’s viewpoint it is also understandable that more consideration and understanding for the project and its processes can be good for project progress and make the life of a PM in an operational environment a lot easier so to say.

As briefly mentioned in the previous section the PM in a way also fulfills an expert role within the airport organization. They especially have unique knowledge on managing construction projects and often also in-depth technical engineering knowledge which is not present in the larger part of the rest of the organization. This is another example of segmentation within the organization. What makes this expert role difficult is that managing a project requires the PM to take the role of a manager. But because the PM can also be seen as expert in some situations this becomes harder. When other actors at the table do not understand typical project management or technical matters it is harder to communicate and come to decisions together when needed. In a way one could say that PM’s are managers in a technical construction field of expertise. This adds complexity to the task and makes coordinating more difficult.

Over the course of the case studies it became evident that in general the PMT does not like procedures and formalities. Mainly because they are often very time consuming and cause extra work. But the thing with procedures and formalities is that for other involved parties or actors they often have a controlling and regulating function in an uncertain environment. Especially in case 2 it was very clear that the asset owner (TRE) considers the permits procedure as a very important way of controlling and safeguarding their interests, while the PMT considers it a laborious and hindering process. As described in the previous field of tension this makes for a procedural conflict, which is less desirable than substantial conflict. The main trend seems to be that a PM likes his or her freedom so to say. This can be related to the desire for autonomy by experts in the manager versus expert mechanism. With regard to formal decisions one can observe that they are generally anticipated and not waited for. The time pressure in the operational environment makes a PMT eager to go on with the project and not await every formal decision or procedure. In all the changes in the case studies, for instance,
the decision was anticipated on and work was continued with the risk of doing it for nothing. In general predicting is encouraged and almost standard procedure for the PMT. One must be careful though not to get too carried away in this. In case 4 a great example of premature predicting and working ahead of the formal decision was observed. This undermined another internal division of Schiphol to decide on whether this work was going to happen at all. But now that it had already started that decision was already taken for them. But in general, although formally not correct, predicting formal decisions and ‘working ahead’ so to say greatly helps the efficiency and progress of projects. Even more so, in the operational and dynamic environment of an airport, a PM is almost forced to anticipate because so many things are uncertain and change over the course of the project.

7.2.3.2 Role of the PM in this field of tension

The way that the PM interprets its role is of great influence to this field of tension. A PM can for instance be very serving to the wishes and demands of operational stakeholders and only facilitate in the process of letting them come to a solution or result. The other extreme is a PM that is very much dictating the course of the project and the decision making, and takes its own stand in a situation or problem as well. There is not one clear answer as to what is the best way to go. This is probably different in every situation. But on the basis of the case studies in this research one can say that with the power and position of most operational actors it is hard to dictate the course of the project. The best example is the ‘backfiring’ brinkmanship strategy in case 1, in which the backed down operational party had the matter reopened after the PM thought it was laid to bed and he could continue with the project like he wanted to.

For PM’s it seemed hard to accept or deal with the power of other actors. Matters are not always in the hands of the PM so to say. Their role and responsibility lies in the successful execution of the project. And in many situations they are not (formally) the party to decide on matters at hand (choice between alternatives for instance). In those situations a PM can have a difficult time accepting the decision, but this seems to be part of being a PM. Also the power of actors that can easily shut down the project is a frustration for PM’s.

In the segmented airport environment almost everyone can be seen as an expert on their specific task within the organization. The PM has the task to manage this playing field of (proclaimed) experts. Generally it is hard to deal with experts, since it is hard to question their standpoints, arguments and opinions on matters that they can be called an expert on. The challenge for a PM in such a playing field is to involve all the relevant actors and have them constructively and efficiently cooperate with the project and with each other. This is easier said than done though. Especially when the operational actors have most of the formal power to make decisions.
7.3 Intermediate conclusion

In this chapter the detailed case observations and findings have been viewed on a higher and abstracter level. The goal of this was to formulate general findings, which were presented as determining factors and as general fields of tension. The determining factors are aspects that are found to be crucial in the development of the issue events in the case studies. The general fields of tension represent important areas of conflict, difficulty, or contradiction which can be elevated from the separate case observations.

**Determining factors:**
- Segmentation
- Perception and rationality
- Trust
- Roles and responsibilities

**General fields of tension:**
- Self-interest versus general interest
- Substantial versus relational conflict
- Project ‘manager’ versus operational ‘expert’
8 Conclusions and recommendations

In this chapter the main conclusions and recommendations of this thesis research will be presented. In the course of the report the sub research questions were answered. In the conceptualization the most important issue dynamics were formulated (Actors, Interactions, Arguments, Decisions, Strategies, Arrangements, Timing, Perception) and explanatory issue mechanisms were investigated (Chapter 5). The dynamics formed a framework to observe issue events in the execution phase of the One-XS project at Schiphol. And theoretical mechanisms were identified for potentially giving the observations more meaning and raising understanding of situations and behaviour. The observations and identified mechanisms were presented in the separate case reconstructions. And finally in chapter 7 an integral analysis of the case studies was performed and reported. This resulted in more general and abstract findings by ascending from the detailed situational analyses in the case studies.

In this chapter the focus is on the main research question:
How can the understanding and management of issues emerging in the execution phase of large airport terminal adaptation projects be improved?

The main research question is a difficult question to give a clear and straight answer on, because the larger part of the research and the report contributes to answering the question. Throughout the whole of the report, and with all of the steps that were taken the goal was to raise the understanding of issues and their management in the execution phase of large airport terminal adaptation projects. Especially the case studies and integral analysis provide insights that are of value to the main objectives of this research. Seven sub research questions were formulated to lead to answering the main research question. These questions will be handled in the following paragraphs (8.1 to 8.6) and will jointly cover answering the main research question. And to complete this chapter recommendations for Schiphol airport and recommendations for further research will be presented.

8.1 Issues

Issues are the focus of this research, and are defined as any relevant event that has happened, was not planned, and requires management action. The sub question related to issues was: What types of issues can be classified in the execution phase of large airport terminal adaptation projects?

The PRINCE2 methodology for project management distinguishes three different types of issues: Requests for change: A proposed adjustment of the agreed specifications or acceptance criteria Off-specification: Part of the agreed specification or acceptance criteria cannot be met. Either now or in the future. Problem or concern: Anything else that either needs to be resolved by the project manager or needs to be escalated to a higher level of management.

In his research Söderholm defines three categories of unexpected events in execution: re-openings, revisions and fine tuning. These can also very well be applicable to issues. The description of an unexpected event is very similar to the description of an issue in this study. They both are the result of uncertainties that can threaten project success.
8.2 Issue management

Issue management is defined as the process of identifying, analysing, responding to, and tracking issues facing the project. The sub question related to issue management was: *How can issues be managed in the execution phase of large airport terminal adaptation projects?*

The overall goal of issue management is to protect the project from the negative impact of issues. The objectives of issue management can be defined as follows:
- Monitor a project to identify new or changing issues.
- Understand and minimize the cost and other impacts of project issues.
- Focus management attention on higher priority issues.
- Make issue-related decisions at the proper level of authority.
- Communicate clearly about issues with the team and project stakeholders.
- Maintain a clear and accurate record of issues and related actions over the life of the project.

Four main ‘types’ of issue management were defined and described in chapter 4:

1. Issue prevention
   This is for a large part done by risk management. Trying to avoid certain issues by acknowledging their possible occurrence and therefore incorporating preventive measures in the plans. It is also possible that a PM for instance sees an issue threatening to arise in a very early stage and acts in order to prevent the issue from emerging.

2. Impact prevention
   When issues do occur management can take action in order to prevent them from impacting the project where/if possible.

3. Mitigation
   If an issue has impacted the project the goal is to get the project back on track to realize the plans as desired. It might also be that a change request is filed and approved. In that case the desired plan to be realized is changed. But this still demands for mitigating action to get the project on that new track.

4. Separation /on hold
   When an issue occurs it might be possible and desirable to set it aside and deal with it in a later stage or put it on a side track to minimize impact on the project as a whole.
   This is similar to the detachment strategy described by Söderholm, in which issues are de-coupled and then either isolated or re-coupled in a later stage as a result of management action.
8.3 Issue dynamics

In order to conceptualize the vastness of reality a number of dynamics that are regarded as important when observing actor behaviour in issue events were defined. The following sub question is related to this: *What are the main components that make up the dynamics around issues?*

The following line of reasoning captures the issue dynamics regarded as important in this research:

| There are: Actors in situations (in the lead-up and in response to an issue), interacting (with a nature of interacting), using arguments, strategies, and making decisions, according to their perception of the situation, other actors, and (inter)actions. And all of this happens over a certain period of time or at certain moments in time with certain arrangements in place. |

Actors, interaction, arguments, strategies, decisions, perception, arrangements, and time are the dynamics that conceptualize the reality around issues in this study. These dynamics and their main aspects and characteristics were used to structure the case observations and to form the basis for formulating issue mechanisms.

8.4 Issue mechanisms

In chapter 5 mechanisms were identified through an extensive literature study in all kinds of science, like Game theory, behavioural economics, and organizational behaviour. The following sub question was formulated in relation to issue mechanisms: *What theoretical mechanisms can be identified to possibly explain actor behaviour in relation to the occurrence and management of issues?*

A large number of mechanisms were defined and described. These mechanisms are a base of knowledge in order to give extra meaning to observations. They potentially have explaining value for situations and behaviour of actors in issue events.

An example of a mechanism is “Competitor neglect”: The tendency to plan without factoring in competitive responses, as if one is playing tennis against a wall, not a live opponent. This mechanism is about neglecting the position and perceptions of other actors. When this happens misunderstandings and conflicts are bound to happen. Below the complete list of defined issue mechanisms is presented. The non-bold mechanisms are sub mechanisms of the bold mechanisms they are positioned directly under.

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8.5 Case studies

Four issue event were extensively reconstructed and analyzed in the case study part of the research. The sub questions associated with the case studies were:
- How do issue dynamics manifest themselves in issue events in the execution phase of One-XS?
- How do issue mechanisms manifest themselves in issue events in the execution phase of One-XS?

These questions capture the complete idea and goal of the case studies. Questioning how the issue dynamics manifested themselves formed the basis of the issue event observations and reconstruction. And questioning the presence of issue mechanisms in the issue events formed the basis for the analyses of the cases in which theory was laid next to the observations.

For every case the lead-up and the response to the selected issue are reconstructed and analysed. The reconstructed issue events are build up as multiple situations that are related to each other. In these situations issue mechanisms are recognized and discussed. This zooms in to the separate situations that are present in the issue events. So the findings and links that were made with theory were very much situational. The situational descriptions and the recognition of mechanisms greatly served the (practical) objective to paint a clear picture of issue events and raise situational awareness and understanding of project managers. It also served the scientific purpose of shedding a different light on issue events and exploring the value and applicability of issue mechanisms.

8.6 General findings

In chapter 7 the detailed case observations and findings have been viewed on a higher and abstracter level. The following sub question is related to the integral analysis: What scientifically valuable generalities can be observed throughout the case studies?

The goal of this analysis was to formulate general findings, which were presented as determining factors and as general fields of tension. The determining factors are aspects that were found to be crucial in the development of the issue events in the case studies. The general fields of tension represent important areas of conflict, difficulty, and contradiction which were elevated from the separate case observations.

8.6.1 Determining factors

The determining factors are: Segmentation, perception and rationality, trust, and roles and responsibilities. These will be handled in the following paragraphs.

Segmentation

The airport organization is very much segmented and it is a factor that is permanently present. It was also recognized as an issue mechanism in chapter 5. But when overlooking the case studies and the context of an airport terminal project it can be identified as an important contextual factor for issue events. It is very much a general factor, and less of a situational mechanism. In that sense it is ‘promoted’ from being a situational mechanism to a general determining factor. There is a functional division in specialist departments within the airport organization. This division exists from functional and organizational motives. It brings structure and hierarchy and makes the diverse tasks manageable. All these divisions and departments have their own tasks, interests, goals,
performance criteria, resources, roles, and power.
On the other hand segmentation also provides a situation that feeds the existence of problematic interactions. Specialized knowledge is hard to share. Segmentation in an organization makes the cooperation more difficult and decreases the shared understanding. One could call this a ‘segmentation dilemma’ between the function and necessity of segmentation and the difficulties of segmentation that have their impact on projects and issue events.

**Perception and rationality**
Perception is a very important factor for the behaviour of actors. In many situations it is determining for their behaviour. Positions, choices, decisions, and other actions are based on the perception of reality. Rationality is strongly related to this perception. An individual’s rationality is based on its perception, since that is how that person sees reality.
Perception was also indicated as one of the issue dynamics in chapter 4. In many observed situations and issue mechanisms (especially related to rationality) it is a very important factor. There is not one shared perception or rationality. And the goal should not be to create one. But more awareness of the inevitable differences in perception and rationality seems crucial in project management. Especially in an operational terminal environment, in which for instance the operational actors have a lot of power, their perception and rationality is very influential.

**Trust**
Trust is an important and fundamental factor for the interaction between actors. Trust is typically a long-term phenomenon, and is not gained over night. Trust is regarded as a relational fundament for efficient and effective issue- and project management. And especially in the airport environment with long-term relationships between stakeholders the building of trust is something that is very crucial.
On the one hand the long-term character provides for the possibility to build up the trust, since it is not usually gained over night. But on the other hand the possibility of damaging the trust between stakeholders is also very much present. Bad past experiences, for instance, can result in distrust and can hinder project progress.

**Roles and responsibilities**
In large airport terminal projects there are a number of typical main roles and responsibilities. At Schiphol the roles and organisational structure related to projects are defined according to the STAP method, which is almost identical to the renowned PRINCE2 project management methodology.
On top of the presence of general roles there can be a difference in the interpretation of a role. Project managers, for instance, can have very different ways of fulfilling their role. And different approaches have different effects in different situations. A PM can be very facilitating or very directing for instance. And an expert can for instance use its specialist knowledge strategically or be very serving to the project. It is important to acknowledge the ranges that exist in role interpretation.

### 8.6.2 General fields of tension

The general fields of tension that were defined are: Self-interest versus general interest, substantial versus relational conflict, and project ‘manager’ versus operational ‘expert’. In the next paragraphs the fields of tension will be elaborated on briefly.

**Self-interest versus general interest**
Throughout the issue cases a tension is present between self-interest and general interest. It is fairly
easy to focus on one’s own interests and views and to optimize within your own scope and rationality. Only ‘thinking within your own segment’ one could say. Throughout the cases one can see that strong individual and department drivers exist. Different self-interests can and will often be conflicting or not aligned to each other. Related to segmentation these self-interest have their function (functional conflict and task optimisation for instance) but also cause difficulties.

In projects a constant tension exists between self-interests and the general interest. In theory the general interest is what would ideally be strived for. But the problem is that this is easier said than done. For starters, there are many overlapping general interests (of different organizations) at an airport and related to large airport terminal projects. These general interests and the way in which they relate to each other can influence the way in which actors behave in many ways. And also within organizations it seems impossible that every division or actor thinks or acts in the general interest of the organization. As mentioned, the organization is segmented and many self-interests, perceptions and rationalities drive the behaviour of actors. One could also argue that the presence of segmentation and different self-interests that can conflict serves the general interest of the organization.

The general interest can be interpreted as the mutual benefit in the prisoner’s dilemma. The prisoner’s dilemma can be elevated to an overarching mechanism that is present throughout the case studies. When looking at the underlying principle of the prisoner’s dilemma (self-interest versus mutual benefit) this can be observed as a very evident and important general mechanism. But the theoretical prisoner’s dilemma assumes that there is no communication possible between the players. And it also has a certain and clear benefit of cooperation. That is not the reality of projects. Generally in project management communication is possible (it may not always be present though), and the mutual benefit (general interest) is not as clear. The general interest is harder to formulate or imagine, is vaguer, and is more uncertain. These aspects might make the original prisoner’s dilemma more complex, but they do take the game out of the controlled ‘laboratory’ so to say and put it in a realistic project environment.

One might even go as far as saying that (large terminal) projects are an ‘endless’ accumulation of prisoner’s dilemmas. This could be written as a formula: Project = PD^n

The complex reality of project management is coupled with a fairly simple concept here. And by doing this it makes it more graspable and sheds an understandable and different light over project management.

It is the task of the PM to best execute the project according to the wishes of the client, while incorporating as much of the different interests of the stakeholders into the project. End of the day the PM is ‘merely’ an executer of the interests of the client and other stakeholders that are involved. The business case of the project is formulated on a high level in the airport organization. From that perspective the goals of the project are likely to be beneficial to the airport organization as a whole. But along the way to the implementation of the new situation and business case there are many situations which are not in the self-interest of actors and divisions. Managing the interests during the erratic and even unpredictable road towards project completion is one of the main tasks of the PM during project execution.

**Substantial versus relational conflict**

The most basic level of conflict is the substantial level: “what are we not agreeing about?” The highest level is the relational level of conflict: “who decides?”, “who sets the rules?”, “I am not working with you anymore!” And in between there is a level of procedural conflict: “what do the rules and
procedures say?” This distinction in three main levels is very important because it seems impossible to solve problems that play at a higher level, at a lower level. Disagreement on the rules or procedures are not solved by solving the substantial conflict. And it also seems pointless to discuss the rules or procedures if relational problems exist and parties are, for example, convinced that the other party is not going to respect these rules and procedures anyway. The perfect example can be found in case 2, in which the asset owner and the PMT discuss the permits procedures conflict while a higher level relational conflict (distrust, blaming etc.) exists between them.

Ideally conflicts are only present on a substantial level, which can be difficult enough already. In the best interest of the project and the organization higher level conflicts are undesirable. But when conflicts elevate to a higher level it is important to tackle them at that same level or else they will most likely continue to exist.

It is also important to realize that a certain amount of substantial conflict is functional in projects. It prevents groupthink and stimulates criticism and innovation. Making trade-offs between interests and standpoints is an essential part of managing a project, and to a great extent it is functional on a substantial conflict level. The other levels of conflict are less desirable and functional.

**Project ‘manager’ versus operational ‘expert’**

In the classical theory on manager versus expert the expert is a subordinate to a manager. And typically the expert is hard to manage for the manager due to a gap in knowledge and the characteristics of an expert who wants autonomy for instance. In the operational airport environment the situation is somewhat different, and so a variation to the mechanism can be seen. From the viewpoint of the project and a PM a special kind of expert is present in airport terminal projects: the operational expert. The main differences are that this expert is not a subordinate to the project manager and that the PM can be seen as an expert (on project management) within the airport organization as well.

The operational expert actually has formal power, whereas the classical expert gains or strives to gain this informally by using its specific knowledge advantage. An operational actor has a double ‘advantage’ in the airport environment, being an expert with formal power. With this power comes a trend that can be seen throughout the cases. Operational parties seem to come back on decisions and agreements easily. In the airport environment this almost seems ‘normal’.

As briefly mentioned in the previous section the PM in a way also fulfills an expert role within the airport organization. What makes this expert role difficult is that managing a project requires the PM to take the role of a manager. But because the PM can also be seen as expert in some situations this becomes harder. When other actors at the table do not understand typical project management or technical matters it is harder to communicate and come to decisions together when needed.

Over the course of the case studies it also became evident that in general the PMT does not like procedures and formalities. Mainly because they are often very time consuming and cause extra work. But the thing with procedures and formalities is that for other involved parties or actors they often have a controlling and regulating function in an uncertain environment.

With regard to formal decisions one can observe that they are generally anticipated and not waited for. The time pressure in the operational environment makes a PMT eager to go on with the project and not await every formal decision or procedure. Generally predicting is encouraged and almost standard procedure for the PMT. One must be careful though not to get too carried away in this and predict prematurely or undermine other decision makers. But in general, although formally not correct, predicting formal decisions and ‘working ahead’
so to say greatly helps the efficiency and progress of projects. Even more so, in the operational and
dynamic environment of an airport, a PM is almost forced to anticipate because so many things are
uncertain and change over the course of the project.

The way that the PM interprets its role is of great influence to this field of tension. A PM can for
instance be very serving to the wishes and demands of operational stakeholders and only facilitate in
the process of letting them come to a solution or result. The other extreme is a PM that is very much
dictating the course of the project and the decision making, and takes its own stand in a situation or
problem as well. There is not one clear answer as to what is the best way to go. This is probably
different in every situation. But on the basis of the case studies in this research one can say that with
the power and position of most operational actors it is hard to dictate the course of the project.

For PM’s it seemed hard to accept or deal with the power of other actors. Matters are not always in
the hands of the PM so to say. Their role and responsibility lies in the successful execution of the
project. And in many situations they are not (formally) the party to decide on matters at hand (choice
between alternatives for instance).

In the segmented airport environment almost everyone can be seen as an expert on their specific task
within the organization. The PM has the task to manage this playing field of (proclaimed) experts.
Generally it is hard to deal with experts, since it is hard to question their standpoints, arguments and
opinions on matters that they can be called an expert on. The challenge for a PM in such a playing field
is to involve all the relevant actors and have them constructively and efficiently cooperate with the
project and with each other.

### 8.7 Recommendations for Schiphol Airport

As a result of this study also recommendations can be done to the organization of Schiphol airport.
These recommendations are not all directly related to issues and issue management, but do originate
from the research that has been performed on this subject.

- In the Work permits case it became clear that the divisions of TRE and PLUS have lots of conflicts
  between them. And not ‘just’ substantial conflicts but also conflicts on a procedural and relational
  level. From an organizational point of view one could argue for integrating staff of TRE in a PMT for
  large projects like One-XS. The interaction between the coordinators of the PMT and TRE is so frequent
  and crucial that putting them closer together, and in the same team could be of great value to all
  involved. The processes will become much more efficient. And also the sense of being on the same
  team will probably provide more incentive to work together instead of against each other.

- What also became evident in the work permits case was the lack of a good and common IT system.
  TRE and the PMT have their separate IT platforms. One collective system would make things a lot more
  practical and efficient. The internal system of TRE is very old and unpractical and is going to be
  replaced. So that would be a great opportunity to immediately tackle this problem as well and go the
  extra mile of creating one file sharing platform which can be accessed by all relevant parties.

- The overall understanding of the interests and drivers of other divisions in the Schiphol organization
  is a point for improvement. Many images of other divisions are based on prejudice. Interdivisional
  understanding could be raised by mandatory interdivisional workshops or taster days at other divisions
to really understand what drives their behaviour.
For instance the asset wise campaign which is trying to embed the TCO/LCC mind-set into the organisation is an attempt to raise interdivisional understanding and create a more joint mind-set through the organization. Regardless of whether or not this is best for the organization, it is a great example of educating the rest of the organization about your division’s perspective.

- Early front end involvement is very crucial. Many involved actors indicated in the interviews that the involvement in the early stages of the project was low and of bad quality. Throwing requirements over the wall in the front end development is something that seems to be done too easily by divisions within Schiphol. Projects are bound to be off to a bad start in this way. Also in three case studies the lead-up to the issue, which is present in the execution phase, can be traced back to a very early stage of the project. This implicates the importance of that stage, and the importance of a ‘good start’. It seems strongly advisable to invest in high quality and dedicated early participation of relevant stakeholders. A joined notion of this importance is key in this.

### 8.8 Recommendations for further research

In this research the focus was on raising the understanding of issue situations. But in relation to this study a number of recommendations for further research can be done:

- A study on best practices or methodologies in issue situations that are recognized in this study. That would form a logical next step.

- Perform the same research on more cases within airport terminal projects. This way more can be concluded on the value of the findings and the validity of the theories.

- Similar research can also be carried out in different environments. The base of knowledge in this research could well be suited for researching other environments too.

- A more elaborate study could be done on more underlying mechanisms. The ones identified in this study are merely the ones that were assumed to be relevant in the literature that was studied. Other promising mechanisms are inherently overlooked or missed.

- In-depth studies that focus on one (or one kind of, like game theory) issue mechanism could be performed to further investigate the findings of this study.

- Further research using an Agent Based Modeling (ABM) approach could be performed with the knowledge gained in this research. A base is created to work from. Especially a first step of conceptualizing actor behaviour and interaction is performed. In the very beginning of this thesis research the idea was to use an ABM approach, but not long after the conclusion was drawn that this would not be feasible and of much value under the circumstances. In the next chapter this will be reflected on in more detail.
9 Reflection

This chapter aims to reflect on this thesis research. The approach is an important topic in this reflection because it changed quite a bit over the course of the research. This will be addressed first, followed by a paragraph on the value of the issue mechanisms. Then the contributions to literature and project management practice are presented, followed by the limitations of the research. And finally a personal reflection on the course of this thesis research is given.

9.1 Changes in approach

This research started out on a different path than it ended on. This is a matter that is valuable to reflect upon. In appendix A important concepts that were studied in relation to the changed approaches are presented. This serves more as background information. This section will start with the first approach: agent based modelling. Then a less formal approach that would not involve modelling will be elaborated on. After this the current approach will be mentioned shortly, and finally a critical ‘reflecting’ view will be given on the eventual approach.

9.1.1 Agent based modelling

At first the idea was to approach issues and issue management in a formal way using agent based modeling (ABM). Agent based models are comprised of multiple, interacting agents situated within a model or simulation environment. There is however no universal agreement on the definition of an ‘agent’. In a lecture by dr. ir. Igor Nikolic of the TU Delft the following descriptions are given (Nikolic, 2010):

- “An Agent is a persistent thing which has some state we find worth representing, and which interacts with other agents, mutually modifying each other’s states.”
- “The components of an agent-based model are a collection of agents and their states, the rules governing the interactions of the agents and the environment within which they live.”

An important aspect of ABM is that agent can be configured with bounded rationality (Castle & Crooks, 2006). Thus, rather than implementing a model containing agents with optimal solutions that can fully anticipate all future states of which they are part of, agents make inductive, discrete, and adaptive choices that move them towards achieving goals. This makes ABM suitable to simulate (realistic) real world phenomena (Nikolic, 2010).

Caste and Crooks describe three claimed advantages of ABM: 1) captures emergent phenomena; 2) provides a natural environment for the study of certain systems; and, 3) is flexible.

These advantages fit very well with the emergent character of issues and the complex and dynamic environment of the One-XS terminal adaptation project. The utility of ABM can be divided into two broad categories (Castle & Crooks, 2006):

- Explanatory Agent Based Modeling
- Predictive Agent Based Modeling

The explanatory approach strives to explore theory and generate hypotheses. Not to predict the future behaviour of a system, but to provide a framework in which observations can be understood as part of an overall process. This approach fitted very well with the desired deductive, formal, and testing character of this earlier intended research approach.
Important is that after quite some research the conclusion was that this approach would very likely be self-defeating. Meaning that the amount of complexity of the modelling and the degree of formalization were factors that would probably make the chance of any meaningful results within the limited time for this research be very small.

### 9.1.2 Formal but no modelling

Then the approach was chosen to be less formal, with no modelling involved. The goal became to identify issue mechanisms (like is done in this research) and formulate hypotheses related to these mechanisms, that then in turn could be ‘tested’ with case observations. Figure 9.1 shows this old research approach visually.

Figure 9.1 Old research approach

After a discussion in which the value and use of the hypotheses was questioned the decision was made to drop the hypotheses from the study. This was due to the fact that the formalization of good hypotheses from issue mechanisms was very tricky and testing them in a satisfying way would also be of questionable quality. This changed the approach again, because the hypotheses were the main aspect of formalization in that approach.

### 9.1.3 Current approach

After the hypotheses were dropped the final research approach (as it is in this study, see section 2.5) was reached. Looking back at this process, one can say that the nature of the research was decided to become less formal twice. Eventually the formal approach is ‘merely’ a conceptualization of reality through the formulation of main components for observation (dynamics) and issue mechanisms form all kinds of sciences.
9.1.4 Critical view on approach

As the research approach was altered quite a bit during the course of the research a critical look at the eventual approach seems to be in order. The most important question looking back on the whole process of this research is whether or not the same results would have been reached if the research had ‘simply’ started by observing cases and then generated learnings from the observations. In that case the case observations and search for theoretical mechanisms would more or less be reversed. And in a way this probably would result in similar findings and conclusions. But the advantage of the approach in this study is the wide base of knowledge that is created before case studies are performed. This provides a better focus area for the case studies and more knowledge in order to ask specific and directed questions in the interviews. When starting with case observations the focus will have to be very wide to start with, because one does not know yet, or has not described yet what dynamics are important. One could say that the biggest difference is that reality would not have been conceptualized in order to make the study and case studies manageable, workable and more understandable. So doing it the other way around could have resulted in the same findings but would have been much less structured. Also with the current approach a fairly wide base of theoretical mechanisms is researched and presented. And although not all have been observed they might well be in future research.

9.2 Value of issue mechanisms

Mechanisms from all kinds of scientific backgrounds were investigated in this research. This approach alone provides a unique and different scientific view on issues and issue management, which is not present in project management literature. In that respect it is already an enrichment to the body of knowledge on issues and issue management. But this does not say anything about the value of the mechanisms. On beforehand their value was only assumed (otherwise the study was not performed and these mechanisms were not selected). And now, afterwards, a conclusion can be formulated on their value. It is hard to analyze the exact value of the mechanisms but some conclusions can be drawn. In this research a rather broad selection of issue mechanisms is identified and used as a base of potentially explanatory knowledge. The strength of this approach is that for a rather large amount of theory the applicability can be observed. But by having this broad view the amount of repetitions that can be observed is rather small. Only four cases have been studied. Nonetheless some conclusions can be drawn on the value of the mechanisms in regard to raising understanding of actor behaviour in issue events. With this the validity of findings can be put into perspective.

- If a mechanism is observed it can be concluded that it at least has some explanatory value for actor behaviour in issue events. At least for that situation it is valid and proves to be applicable.

- When a mechanism has been observed multiple times the validity of its explanatory value increases. These mechanisms are most valid in this research. The conclusions that are made in relation to these mechanism subsequently are also most valid. The mechanisms that have been observed multiple times are: Manager versus Expert, Chicken game, Brinkmanship, Predicting, Procrastination, Competitor neglect, Individual versus system ratio, Conflicting time rationality, and Misaligned individual incentives.

- The mechanisms that have not been observed are not worthless, but their explanatory value has not gained any validity on the basis of this study.
9.3 Contributions to literature

The most important contributions to scientific literature are summed up below:

- This research shows an alternative and unique approach to analyzing issues and related actor behaviour. In previous research on project management and issue management the focus has very much been on the use of theoretical methodologies and standard project management practices. Many researches have for instance revolved around project and process managerial characteristics. But this study does not bound itself to any established project managerial paradigm or methodology. These theories have been researched so many times and in many different environments that it seems undesirable and almost invaluable to do so again. Reinventing the wheel is of good to nobody.

- This research provided a base of knowledge (issue dynamics and issue mechanisms) to analyze actor behaviour and interactions in issue events and possibly in project situations in general.

- This research presents a conceptual ‘model’ for the analysis of issues in airport terminal projects. The issue dynamics and the way of reconstructing issue events in this research can serve as a model or framework for observation.

- This research shows the essence of the bounded rationality paradigm in project management related research. This adds great complexity but also realism. Different rationalities and with this also different perspectives drive the way in which actors behave.

- This research has a rather broad view of mechanisms and issue events. And with this view it shows potential scientific areas that are promising for further in-depth research. For instance in the field of game theory the prisoner’s dilemma and the chicken game could well be researched in greater detail in order to gain more understanding of their influence and part in issue- and project management.

- An elevated view over the detailed and situational observations and findings is taken in the integral view. This provides findings and conclusions on a more abstract and general level. By doing this the research transcends back to a more widely understandable and applicable level.

9.4 Contribution to project management practice

For project management practice this research contributes the following:

- Giving a clear reconstruction of the issues and the mechanisms that play a role in certain situations, project managers can gain a better understanding of situations.

- By reconstructing the complete issue event the situational awareness is broadened, and not just about the issue itself. The reconstructed events are taken back as far as considered relevant and related to the issue at hand. And also forth until the issue is considered fully resolved. This potentially gives PM’s more and completer understanding of why and how the issue come to be and how it was responded to.

- Project managers are provided with a view that looks at the practices they are part of on a daily basis from a bit more distance. They are so in to the whole process that stepping out of it and overlooking it can be of value to their understanding of issue events.
- The integral view provides more general and overarching findings that transcend the detailed and separate observations in the case studies. These findings provide insights on a (higher) level that is generally understandable. And these are possibly more widely applicable (other environments or in a general project management sense for instance) than the detailed observations and findings.

### 9.5 Limitations

If this research is looked upon critically, there are limitations in the results. The following specific limitations can be appointed:

- In this study a limited amount of data is collected (only four cases). There was not enough time in this master thesis research to analyze more cases. More relevant data inevitably raises the value and validity of the findings.

- The mechanisms that were defined in the literature study are quite random. They do not originate from some common science or belief. And one could say that there are an unlimited amount of mechanisms like this. The ones formulated in this report are just the most promising ones from all the literature that was studied.

- Apart from being a value of this research the broad base of issue mechanisms can also be seen as a weakness. Because there is no focus on a particular mechanism or phenomenon there are no real in-depth conclusions that can be made in regard to the validity of the mechanisms in relation to issue events. Observing them once or twice is far from a deductive confirmation of the value of a theory.

- Almost all information came from interviews. Interviews can produce unreliable data because interviewees are not always aware of their own motivations for certain decisions. And the memory of people is limited. In addition, interviews can stimulate socially desired answers because respondents are more willing to show their strengths than their weaknesses.

### 9.6 Personal reflection

In this section a personal reflection on the course of the research project will be given.

In the beginning of the study the goal was to approach project- and issue-management from a mathematical and formal perspective. Modelling is something that I like and so I went and plunged myself in the worlds of Agent Based Modelling, formalization techniques and game theory with great enthusiasm. This resulted in a proposal and first ideas of how this all would have to take shape.

But as argued in 9.1 the approach of the research changed over time. Although it is perfectly explainable and maybe even logical that these steps and changes have been gone through during the project, they did result in a long period of insecurity and vagueness on the exact course of the research. The period between the kick-off and the mid-term was mostly consumed by shaping the research approach and literature studies. Many weeks have gone into studying ABM and formalization methods, with the result of concluding that approach was not desirable and feasible within the boundaries and with the goals of this research.

Until the mid-term I was very much broadening the theoretical base of the research. In the mid-term meeting the focus was on really determining the course that was going to be taken with this wide base
that was laid. I was very pleased with this development because for quite some time I was on the verge of losing oversight and direction. There were weeks that I was completely flushed with different theories and ideas. And even though you know from the experience and stories of friends that most likely there will come a period in your thesis project that you will feel like you are drowning, and as much as I tried to not get myself in such a situation, it happened to me too. This could have been avoided with a very clear, focused, and also feasible research approach in an early stage. This is crucial.

After the mid-term I started working with a clearer goal and path to get there. The case studies were the next step. I was surprised how willing everyone was to cooperate with my research. For the interviews I had made a setup and a list of questions. The interviews became more efficient and effective after the first few. Getting relevant information is key in that phase of the research. The visual reconstructions were a great tool to use in interviews. It provided structure and it made communicating the reconstruction I had made until then with interviewees much easier and clearer.

The next phase was to work towards the green-light meeting. This entailed processing and reporting the case studies and formulating conclusions. Unfortunately the green-light meeting was cancelled at the last moment and I received my feedback separately from each supervisor. I think it would have been better to have a regular meeting with everyone in the same room, because this gives the opportunity to react on each other directly and discuss matters that are not mutually agreed upon. After the green light I had several meetings with my first supervisor I order to get the finishing of my report and the last analyses on the right track. These were very effective meetings which helped me a lot. It was great that my supervisor made time to help me complete the last phase of the research.

Looking back on the whole thesis research, it has been a very educating period. A large individual research project like this is something that I have always found intimidating and challenging. For that reason alone having completed it is already a huge personal victory and learning experience.
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<td>Liquids, Aerosols &amp; Gels</td>
</tr>
<tr>
<td>LCC</td>
<td>Life Cycle Costing</td>
</tr>
<tr>
<td>OM</td>
<td>Operations Manager</td>
</tr>
<tr>
<td>PB</td>
<td>Project Board</td>
</tr>
<tr>
<td>PD</td>
<td>Prisoner’s Dilemma</td>
</tr>
<tr>
<td>PM</td>
<td>Project Manager</td>
</tr>
<tr>
<td>PMT</td>
<td>Project Management Team</td>
</tr>
<tr>
<td>PoR</td>
<td>Programme of Requirements</td>
</tr>
<tr>
<td>PRM</td>
<td>Passengers with Reduced Mobility</td>
</tr>
<tr>
<td>PS</td>
<td>Passenger Services</td>
</tr>
<tr>
<td>RS</td>
<td>Reversed Screening</td>
</tr>
<tr>
<td>SAOC</td>
<td>Schiphol Airline Operators Committee</td>
</tr>
<tr>
<td>SC</td>
<td>Stilte Centrum (Silence Centre)(religious centre)</td>
</tr>
<tr>
<td>SM</td>
<td>Senior Management</td>
</tr>
<tr>
<td>SRE</td>
<td>Schiphol Real Estate</td>
</tr>
<tr>
<td>TM</td>
<td>Team Manager</td>
</tr>
<tr>
<td>TRE</td>
<td>Terminal Real Estate</td>
</tr>
<tr>
<td>V2</td>
<td>Vertrekhal 2 (Departure hall 2)</td>
</tr>
<tr>
<td>V3</td>
<td>Vertrekhal 3 (Departure hall 3)</td>
</tr>
<tr>
<td>VAT</td>
<td>Value-Added Tax</td>
</tr>
<tr>
<td>VOP</td>
<td>Vliegtuig Opstel Plaats (Aircraft stand)</td>
</tr>
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<td>WA</td>
<td>Werkaanvraag</td>
</tr>
<tr>
<td>WCA</td>
<td>Werk Coördinatie Airside</td>
</tr>
<tr>
<td>WOT</td>
<td>Werk Overleg Terminal</td>
</tr>
<tr>
<td>WV</td>
<td>Werkvergunning</td>
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</tbody>
</table>
A Formal approach

In this appendix a number of topics related to the more formal approach that was first intended for this research are presented. These topics do not necessarily follow logically after one another, but can be seen as separate.

A.1 Concept of formalization

There is a lot of literature available, and so there are also a lot of different descriptions of formalization. Very generally said; formalization is the process of transforming a less-formal system or model into a more-formal one (Ammar & Abdallah, 2011). Figure A.1 shows this general concept of formalization. It is basically moving along the axis from empirical towards formal science. Formalization reduces the gap between empirical and formal worlds (Arduin et al., 2013).

![Figure A.1 Concept of formalization](image)

Some principles that are commonly used in literature to describe formalization are:
- Exact, Mathematization, Abstraction (Griesemer, 2012)
- Explicit definitions and operations, Mathematical modeling (Kronenfeld, 2008)
- Make theoretical ideas Precise (Vanpaemel & Lee, 2012)

So this means that there are degrees in formalization; from a purely mathematically formal approach to all sorts of hybrid forms that lie more towards empirical science. An important question is: where on the scale do you want to be? Or in other words: what level of formality is desired and appropriate? The answer to that question was very much in place when this thesis research started out.

A.2 Formal science

Kronenfeld (2008) gives a very minimalistic definition of ‘formal’: explicit definitions and operations. Formal science can aid in constructing, assessing, and testing of scientific theories and models, by revealing inconsistencies or invalid forms of inference (drawing conclusions). Formal models can be used to make theoretical ideas precise and allow them to be quantitatively evaluated against data (Vanpaemel & Lee, 2012). Formal science is closely related to deduction. In deduction theories are tested with data and observations (Blackstone, 2012). See Figure A.2. Initially it was the desire to formulate hypotheses based on issue mechanisms that would be tested.

![Figure A.2 Deductive research](image)
A.2.1 Formal Modeling

Complex socio-technical systems can be modelled to gain insight in them. For such systems it is preferred to model them from the bottom up (Nikolic, 2010). This means that the model is built up from interacting components that make up the total system. This principle is described in generative science theory (Epstein, 2006). Epstein describes the heterogeneity and autonomy of individuals with their individual (bounded) rationality. By individuals interacting locally, according to local rules, the system is generated from the bottom up. So the system as a whole is generated by these local interactions. The main question posed in generative science is how the decentralized local interactions of heterogeneous autonomous agents can generate a given regularity (Epstein, 2006). Important for this research is the notion that a difference is made between individual rationality and the rationality of the process (the system as a whole, where the individual is part of). The system rationality can be seen as the bigger picture of the project. And individual rationality might conflict with this.

A.3 Degree of formalization

Kronenfeld (2008) says the following about the range of formalization: “Formalization” can range from, at the one extreme, explicit forms of data representation and manipulation to, at the other extreme, an explicit well-defined mathematical model or simulation designed to embody a theory and to allow deductions from the theory regarding data and/or changes in the portrayed conditions as relevant variables change. A formal theory thus can be a very powerful experimental device—when its relationship to empirical observations is made clear. But even explicit formal representations of postulated or hypothetical data relationships can become powerful tools for exploring the effects of different claims about data relations and thus for refining and formalizing relevant theory.

The least extreme form of formalization as described by Kronenfeld fits well with the initial objectives of this study. Also since the input of this research is empirically obtained data, the base of the research is empirical. The goal was to take these empirical assumptions and test their validity. The validation will be done by empiric observation, so staying rather close to the empirical side is desirable to not lose connection and scientific value. Also the limited time and lack of mathematical modelling expertise play a role in this. An important notion was that the formalization is purely a tool to reach the goals of gaining more understanding of issues and managing them. The desire was not to construct an optimal formalization framework for issue management related research.

Related to the degree of formalization is the language used to formalize theories and observed reality. A so called formal language can be used. In formal science these languages usually have a mathematical and/or programming character. In this study the use of a formal languages was not desired. The reason for this is that the link with empiricism is desired to stay strong.

A.4 Agent based modeling

Agent based models are comprised of multiple, interacting agents situated within a model or simulation environment. There is however no universal agreement on the definition of an ‘agent’. In a lecture by dr. ir. Igor Nikolic of the TU Delft the following descriptions are given (Nikolic, 2010):

- “An Agent is a persistent thing which has some state we find worth representing, and which interacts with other agents, mutually modifying each other’s states.”
- “The components of an agent-based model are a collection of agents and their states, the rules
An important aspect of ABM is that agent can be configured with bounded rationality (Castle & Crooks, 2006). Thus, rather than implementing a model containing agents with optimal solutions that can fully anticipate all future states of which they are part of, agents make inductive, discrete, and adaptive choices that move them towards achieving goals. This makes ABM suitable to simulate (realistic) real world phenomena (Nikolic, 2010).

Caste and Crooks describe three claimed advantages of ABM: 1) captures emergent phenomena; 2) provides a natural environment for the study of certain systems; and, 3) is flexible.

These advantages fit very well with the emergent character of issues and the complex and dynamic environment of the One-XS terminal adaptation project. The utility of ABM can be divided into two broad categories (Castle & Crooks, 2006): - Explanatory Agent Based Modeling - Predictive Agent Based Modeling

The explanatory approach strives to explore theory and generate hypotheses. Not to predict the future behaviour of a system, but to provide a framework in which observations can be understood as part of an overall process. This approach fits very well with the desired deductive, formal, and testing character of the earlier intended research approach.

A.4.1 Level of abstraction

The level of abstraction of the formalization needed to be defined. The agent-based approach can be used when the appropriate level of description or complexity is unknown, and finding a suitable level requires exploration (Castle & Crooks, 2006). The level of abstraction is important in order to align the formal model and the observed reality. It is desirable to formalize, but keep touch with the empirical observation of reality. Otherwise the touch with reality might be lost and the research will be of less value. This is an important pitfall that must be acknowledged. A model should be built at the right level of description and abstraction to serve its purpose (Couclelis, 2002).

In ABM it is common to use a certain formal language. This means that everything is approached almost mathematically (Gräbner, 2013). But in this study this is not desirable, because then the touch with empiricism will be lost or very hard to maintain. So no mathematical formal language will be used to describe issue mechanisms. But issues will be described in a very abstract and precise manner.

A.4.2 Choice of ABM method and tool in old approach

In concert with Mr. Warnier it was decided that the choice for an ABM method and software tool should be made in a pragmatic way. Since time is limited, a very elaborate consideration of what ABM method to use is not desirable in this research. A rather simple ABM method will best suit the purpose of this study, since the relation with empiricism is desired to be kept strong. The formal model is ‘merely’ a tool/method to accommodate a systematic comparison between theory and reality. The most important requirements for the chosen method of modelling are that it is fairly easy to use, and that it can accommodate in the need to keep a certain level of touch with empiricism.
B Players analysis

In this appendix an exploratory analysis is presented on the players in the (project) managerial playing field for large airport terminal adaptation projects. This serves in sketching the project management scene that is present. First the general playing field will be presented. This will provide a picture before the players and interfaces are explained in more detail. Then the main players with their most important characteristics will be described. Then the main managerial interfaces that play a role are defined and presented.

B.1 General playing field

In order to sketch the scene a general playing field is formulated. This is done in a very abstract way and functions as a simplified representation of the different types of players involved in large terminal adaptation projects. In Figure B.3 the general playing field is visualized. There are two main types of players indicated in the figure. On the left side there is the (permanent) operational side that is present in an operation terminal (such as Schiphol). On the right there is the (temporary) project side. The five main players are:

- Project management team (PMT)
- Project Board
- Contractor
- Senior Management
- Lower Management

The four main project managerial interfaces are named:

- Management interface
- Execution interface
- Operations interface
- Internal project team interface

These players and interfaces will be elaborated on in the next sections. A more detailed analysis of relevant actors can be found in
B.2 Main players

The main players presented in the previous section will now be described according to their formal task(s), responsibilities and powers (capabilities). These formal characteristics are mainly deducted from the STAP methodology, which is developed at Schiphol as their project management methodology. STAP is heavily based on PRINCE2, one of the most renowned theoretical project management methodologies (Schiphol Group, 2013).

B.2.1 Project Management Team

This entails the full team that is assigned to manage the One-XS project on behalf of PLUS. In appendix D the structure of the PMT of One-XS is presented. Their main task is to manage the execution of the project.
Tasks and responsibilities
- Planning, monitoring and controlling of all aspects of the project.
- Motivating everyone involved in the project.
- Achievement of the performance targets for time, cost, risk, benefits, scope and quality.

Capabilities (power)
- Formal power to make decisions and to manage the project within the boundaries set by the project board.
- Can escalate to the project board
- Hire contractors

B.2.2 Project board
The project board is formally the highest entity in the project structure. Its overall task is to give direction to the project. The Project Board determines the direction throughout the life of the project and takes the important decisions. The Project Board represents the three main interests in a project: that of the paying customer (business), the user (users) and the future asset owners (suppliers). The Project Board is responsible for the project success within the limits set by the line management.

The project board works on the basis of the ‘Management by Exception’ principle, so only when there is something to control (Schiphol Group, 2013). The project board consists of three kinds of parties:

- **Client**
  *Is this what my business needs and is it worth my resources?*

- **Senior Users**
  *What do I want as a future user?*

- **Senior Suppliers**
  *Can I realize it and how must it be managed?*

Tasks and responsibility
- Authorize and approve project phasing and project management documents.
- Determine and control project tolerances.
- Communicate with internal and external stakeholders.
- Provide direction and guidance to the project, in order to ensure project viability.
- Respond to requests for advice from the project manager.
- Make decisions on escalated issues.
- Authorizing and bearing responsibility for the transfer of recommendations, follow-up actions, updating Business Case, etc. to line management.

Capabilities (power)
The PB comes together for:
- Approving a plan
- Closing of a phase
- Decisions based on clear Highlight or Exception reports
B.2.3 Contractor

In the execution phase a large player is the contractor. In large project there are bound to be multiple contractors and sub-contractors. Their role in the project depends on the type of contract that is in place. More on this in section B.3.2.

Tasks and responsibilities
- Execution of work as defined in plans. On specification.
- Possibly co-responsible for plans in cooperation with PMT and advisors. (Building team contract)

Capabilities (power)
- Formally subordinate to PMT, so not much formal power.
- Expert power (informal). Contractors have unique and expert knowledge in certain areas, this provides informal power.

B.2.4 Senior management

This group consists of senior managers of involved stakeholders. For the One-XS project these stakeholders are mainly within the Schiphol organization. Outside the Schiphol organization the most important are KLM, KMar (military police), and Security companies. Some departments or organizations are also represented in the Project Board. But nonetheless there are senior managers that represent their interest from this angle.

Tasks and responsibilities
- Represent the interests of their department or organization.
- Control operational continuity during project execution
- Possibly have a seat in the project board

Capabilities (power)
- Shut down project execution
- Scope change requests (only internal parties)
- Escalate to project board

B.2.5 Lower management

These managers are subordinate to senior management. This is a large group of managers. They stand closer to actual operational processes. At Schiphol one must think of middle and lower management of several departments. Their main task is to manage the processes they are responsibly for and report to their superior management.

Tasks and responsibilities
- Manage their operations.

Capabilities (power)
- Escalate to senior managers.
- Some are capable of shutting down project execution
B.3 Main project managerial interfaces

In this section the four managerial interfaces will be elaborated on. The interfaces are all defined and approached from the perspective of the PMT.

B.3.1 Management interface

Almost constantly there is interaction with Senior Management about the project. They might want things, want things differently, may need to be consulted etc. Their interests and expectations need to be managed by the PMT.

The Project Board only comes together when this is needed. They have parties that represent them on a more regular basis. In Figure B.4 the most important parties can be seen: Change Authority and Project Assurance.

The Change authority is empowered to deal with change requests up to a certain level. Project Assurance can be seen as the ears and eyes of the project board. They have much interaction with senior management and the PMT.

In this interface formal decisions on issues are taken. Issues can both be escalated to this level or originate on this level.

![Figure B.4 Project Board representation](image)

B.3.2 Execution interface

This is the interaction between the PMT and the contractors that execute the work. The main interest of the PMT is managing the execution phase and keeping the project on track. The interaction and cooperation between the two strongly depends on the type of contract that exists for the work. Within the One-XS project there are multiple contractors. Every sub-project is awarded to a different large contractor. For the EF sub-project for example, it was chosen to work in a building team fashion. This means that the relationship between PMT and the contractor is desired to be very cooperative, involved and constructive. The other sub-projects are rewarded in a more traditional way which means...
that the relationship between the two parties is more directive and less demanding.

Figure B.5 shows an abstract visualization of the execution interface. The most important aspect is the presence of supervisors. They are an important link between the PMT and the contractor on site.

**Figure B.5 Execution interface**

### B.3.3 Operations interface

This is the interface between the execution of the project (carried out by the contractors and managed by the PMT) and operational players.

The contractors operate in the heart of a very complex general interface between project and operation at Schiphol. Project management needs to manage this interface. Thus the interface between operations and the project.

### B.3.4 Internal project team interface

This playing field covers the interactions that are present within the project management team itself. Managing and coordinating the people within the team is a complex task on its own. For a large project like One-XS the PMT consists of more than 50 people in the execution phase. The Project director is responsible for managing the whole team.
In this appendix a simplified organizational structure of Schiphol Group is shown. The organization has four main business areas: Aviation, Consumers, Real estate, and Alliances & Participations. The project management department PLUS is a support unit (SU) of Schiphol group, and not part of the one of the business areas.

Aviation is the area in which all aviation related activities take place. Airport Operations (AO) is a sub department of Aviation, and is officially the client of the One-XS project. There are three divisions of AO that are relevant to mention for this study: Terminal Real Estate (Asset Owner of the terminal), Passenger Services, and Security.

Figure C.6 Organizational structure Schiphol Group
D  Project structure One-XS

In this appendix the project structure of One-XS is shown. The highest project entity is the project board. The project director is the head of the Project management team (PMT). The One-XS project is divided into several sub projects, which all have a Team manager. Team managers can have several project managers in their teams, and also supervisors that supervise the construction work by the contractor.

The board consists of the client (operations) as chairman and the senior suppliers (Security and asset management) and the senior users (KLM, Schiphol Airline Operators Committee, Consumers, Schiphol Real Estate). In addition, KLM, as most important stakeholder, has an extra function within the structure. A program manager of KLM is mirrored to the overall project director of One-XS.

Figure D.7 Project structure One-XS
E  Issue and change procedure One-XS

In the figure below the change procedure of One-XS is shown. This is the formal process that comes into play when an issue is a change, like is also indicated in the top left oval block of Figure E.8.

Figure E.8 Change procedure One-XS

Several levels of changes have been identified. For the first two levels the Change Authority is empowered to decide on behalf of the project board. As can be seen in Figure E.8 different processes must be gone through depending on the level of the change. Figure E.9 shows the characteristics of the four defined change levels.

<table>
<thead>
<tr>
<th>Change-level</th>
<th>Binnen kader business case</th>
<th>Criteria*</th>
<th>Check op criteria</th>
<th>Akkoord op uitoering change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Ja</td>
<td></td>
<td>Change Manager (CM)</td>
<td>Change Authority (CA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt; 50k€ (all-in)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Binnen changebudget deelproject</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td>Ja</td>
<td></td>
<td>Change Manager (CM)</td>
<td>Change Authority (CA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt; 250k€ (all-in)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Binnen changebudget deelproject</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>Ja</td>
<td>Binnen kader business case (change is noodzakelijk voor project One-XS)</td>
<td>Change Authority (CA)</td>
<td>Project Board (PB)</td>
</tr>
<tr>
<td>Level 4</td>
<td>Nee</td>
<td>Buiten kader business case (change is niet noodzakelijk voor project One-XS &gt; exception report)</td>
<td>Change Authority (CA)</td>
<td>Project Board (PB)</td>
</tr>
</tbody>
</table>

* Overschrijt niet de procesregeling Schiphol

Figure E.9 Change levels and authority
F Orientation interview protocol

This protocol was made for the orientation interviews. After the cases were selected in consultation with the project director, the appropriate project manager was interviewed to get a general understanding of the issue and to list the important actors to interview. The following questions are asked in the orientation interviews:

1) What was the issue?
2) Which parties and actors were involved?
3) What were the general positions and standpoints of the actors?
4) What was the impact or expected impact of the issue?
5) When did the issue take place?
6) What was the outcome of the issue? What was decided and/or done?
G Interview protocol

Following on the orientation interviews in-depth interviews with selected relevant actors are conducted. The following questions are formulated for these interviews. As explained these question serve as a general guideline to make sure all relevant aspects are discussed.

The issue
- What was the issue?
- What was your position in regard to the issue?
- What caused this issue you think?
- What was your interest?

The interaction
- Who was involved?
  - Actors
  - Roles
- How did parties react to the issue and related situations?
  - Arguments
  - Positions
  - Perceptions
- How did interactions take place?
  Medium, frequency, formality
- How was the nature of interactions:
  - Supportive?
  - Cooperative?
  - Understanding?
  - Level of trust?
  - Use of power?
  - Communication?
  - Relationship?
  - Involvement?

Arrangements
- Was a contract signed? And when?
- Were there procedures in place?

Decisions
- What were important decisions concerning the issue event?
- Who made the decisions?

Strategies
- Did you use a strategy in order to achieve/satisfy your interest?
- Were these actions successful?

Timing
- When did relevant events take place?
H Reversed Screening ‘light’ solution

Figure G.1 Light solution Reversed Screening issue
I Interviewees

Reversed screening GH-building issue
- Orientation interview: Bart Verhoeff – Team manager G pier & GH Building
- Tom van Maastrigt – Security
- Bart Verhoeff – Team manager G pier & GH Building

Work permits procedure issue
- Orientation interview: Paul Drewes – Permits coordinator One-XS
- Rene Gielen – Permits coordinator TRE
- Paul Drewes – Permits coordinator One-XS
- Rob Van Velzen – Project manager EF sub project
- Benno de Zwart – Project director One-XS
- Coen van Lieshout – External advisor TRE

Temporary housing gate F2
- Orientation interview: Andreas de Rooij – Team manager temporary facilities
- Alicia van Woensel – Project manager EF area
- Kees Straver – Team manager V2 and 3
- Andreas de Rooij – Team manager temporary facilities

KLM in V2
- Orientation interview: Benno de Zwart – Project director One-XS
- Kees Straver – Team manager V2&3
- Jan-Jaap Hoving – Business Operations Manager PS
- Harry Klein Kranenburg – KLM (Business Consultant)

General
- Benno de Zwart – Project director One-XS
- Daniel van den Dries – Manager projects PLUS
- Joyce Groot – Business Controller Masterplan
- Martijn Hoogenboezem – Team manager EF area
- Barbara de Vink – Change manager One-XS
In this appendix the issue long list will be presented of issues that could potentially be selected for the case studies in this research. During the research many issues have come to my attention. Through meetings with colleagues and/or found in the issue register of the project. A number of these issues formed this long-list. The most interesting ones are described shortly.

**Asbestos in the F pier**
Asbestos was found in the F pier. The contractor wants to remove it all at once, for safety reasons. In combination with work on the roof for the extra floor it can be unsafe when there is asbestos in the ceiling. PM wants to do it in phases because of restrictions (max amount of gates being out of use etc).

**Internal gatehouses**
Gates E24 and E19 will not have external gate houses like the other gates will have. The possible redirection to the upper level will be facilitated within the terminal building. But the location for this internal gatehouse is right where the security filter of the gate is in the current situation. The issue is where to move the screening to so that the gate can be used during construction.

**Steel construction E and F pier**
Execution has been started, but preparations are still needed for part of the project (Building team arrangements). This caused for an issue concerning the steel construction. The contractor cannot build because he does not know the exact design, so cannot order the steel components needed.

**Root of the E pier**
At this site the roof needs to be reinforced. Currently it is not strong enough to carry the extra level that will be constructed on top. This location is prone to have issues. It is a very busy and important intersection in the terminal. Many different parties are involved and/or want to be involved. This raises the chance of issues occurring.

**Ica lounge**
This is the business lounge of KLM. It is very important for them. It is situated in a difficult spot at the root of the F pier with lots of interfaces between daily operations and construction work. Coordination of plans with KLM was very difficult, and resulted in some changes. This was undesirable since it was on the critical path of the project. It was managed by separating it from the critical path. This was accomplished by temporary measures that removed the criticality.

**Ica lounge entrance discussion**
For instance a long discussion on the design of the entrance to the Ica lounge.

**Luggage belt**
Needed to be moved. Very important that luggage system is not shut down. Construction workers moved a belt they should not have. How can this happen? Individual ratio that influences the system. Bad communication? Good intentions by worker that turn out to have undesired consequences.
Glass delivery
For the E/F sub project special glass is ordered in Portugal. But this is delayed. The Project director and PM of E/F already went to Portugal to have a look.

Work permits procedure
The work permits procedure that is in place causes delays for the project. When not obtained in time, related work cannot start. The asset owner (TRE) and the PMT are in conflict about this procedure.

Security filters and V2/3 interface
The design of the filters is still in progress. But the construction on the structure has already started. So this does not (yet) fully take into account the specifications that the security filter design will require.

Temporary facilities gate F2
Different parties have planned temporary facilities in this area causing conflict. Gate F2 will be out of use for the larger part of the project execution. This is due to the extension of the EF-area. So the F2 gate area in the terminal has no function during this time. This makes it an ideal area for temporary activities.

PRM lounge (Is temporarily housed in F2 gate area)
All sorts of discussion on exact content of temporary housing
Global blue and customs offices (VAT reclaim)
Together these facilitate a VAT reclaim service to passengers leaving the Netherlands. The VAT reclaim needs a temporary home during construction in their old location.
ABN Preferred banking
Supposedly they had a strategy in getting compensated for not getting a temporary rehousing. But in fact they did not necessarily want a temporary facility in F2. They got compensated to move elsewhere.
Stiltecentrum
Possibly also temporarily housed in F2. There were also other locations considered.

Reversed screening GH building
Bus terminal which docks passengers from ‘naughty’ flights. These are flights that arrive from countries that are normally marked as clean but are removed from this status until they are up to standard again. These flight cannot be handled at their normal gate. Incorporating this matter in the GH building did not go easy. Lots of discussion and ended up as a change in the execution phase of One-XS.

Café Rembrandt
Relocating issues. Delays and possibly temporary location before permanent relocation.

Tiles discussion
Contractor wants to order different tiles, but in the contracted designs a certain standard tile is prescribed.

Who pays?
Many discussions between parties are about who pays for certain affairs.

KLM in V2
In departure hall 2 the KLM wants additions to the project. There is a lot of discussion on the substance
of the plans of KLM, and also on the costs. The discussions are especially between PS and KLM. As a result changes are requested, these have their impact (delays) on the V2/3 project.

**Door matrix**
Discussion on who delivers complete matrix for the doors.

**Parking places contractors**
A number of PM’s indicate that the parking facilities are not arranged properly. Responsible party within Schiphol seems to not see the importance of this.