Project failure in project based organizations

The case of Construction, Shipping, Offshore and IT companies

Radboud Universiteit

Name: Max van Haaren (s1039325)
Master: Business Administration - Strategic Management
1st supervisor: dr. H.L. Aalbers
2nd supervisor: dr. Mirjam Goudsmit

Master thesis
Date: 17-06-2021

Foreword and acknowledgements

The following master thesis is the result of almost half a year of hard work and dedication in different circumstances then I would have expected. The covid pandemic made this master thesis more challenging in ways, but also had an upside of new opportunities. I have had the pleasure to digitally meet and work with many interesting people. I have learned a great deal about projects and four sectors of which I had no previous knowledge of. During this period, I have had conversations with interviewees that I will not forget easily because they were so fascinating and memorable.

I would like to extend my sincerest appreciation to all the people who helped and supported me to accomplish this study. First of all, my gratitude goes out to my supervisor, Rick Aalbers, for his guidance, effort and dedication. Secondly, I would like to thank Beaufort Corporate Consulting & Interim Management for the opportunity of this internship (which contained a financial compensation). I would especially like to thank Arthur van Midden for his time, devotion and guidance during this master thesis. My last gratitude is extended to everyone who agreed to be interviewed for their time, openness and hospitality.

Max van Haaren

Nijmegen, June 2021

Abstract

Today's project based organizations mainly focus on executing projects to ensure organizational continuity. A large number of those projects fail partially or even completely. Project failure originates from causes of project failure, also known as antecedents of project failure. In order to obtain more insight into these failures and better/timelier anticipate them, this study researches the antecedents and effects of project failure. Literature shows a large amount of project failure antecedents across different sectors. However, none of these studies have researched this phenomenon across multiple sectors and multiple organizations. Hence, this study contributes to the current literature regarding project failure. In addition, prior literature shows that antecedents of project failure can be categorized into two main streams: rational antecedents and behavioural antecedents. Prior literature also shows that escalation of commitment behaviour (linked to behavioural strategy) can be seen a prime behavioural antecedent and is therefore researched within this study. In order to attain insight into the meaning that people attribute to the situation/events and understand perspectives of those involved, qualitative research is required. For this qualitative research, interviews are required to obtain this knowledge. 16 cases have been interviewed across four sectors (construction, shipping, offshore and IT). The interviews form the multiple case study that in combination with the literature review form the complete research regarding project failure. This research was conducted in cooperation with Beaufort Corporate Consulting & Interim Management (hereinafter referred to as Beaufort) and therefore their expert opinion is incorporated in this research.

The results of this research show that six rational, four behavioural (including escalation of commitment) and five combinational (rational as well as behavioural) antecedents of project failure are mainly present in the four sectors. The results also present insights into the effects of project failure. The main effect of the antecedents of project failure was financial failure (so financial losses), with a negative effect on the project result. Delays within the progress of a project was also a reoccurring effect, but was not present in most cases across all sectors. Lastly, this study contributes to our knowledge regarding the escalation of commitment theory. It shows that escalation of commitment behaviour has various causes, effects and multiple methods/ways of preventing this behaviour. Therefore, this study contributes to the field of project failure (antecedents and effects of project failure) and the field of behavioural strategy (behavioural antecedents and escalation of commitment). The findings of this research also show that escalation of commitment is not the prime behavioural antecedent of project failure within this study. Nevertheless, it is one of the most important behavioural antecedents and consequently contributes to the field of behavioural strategy as stated above.

Table of contents

Radboud Universiteit

1. Introduction

There are many different types of organizations in the world in various sectors. One of those types of organizations is the project organization or project-based organization. Project organizations are predominantly or entirely project based (Hobday, 2000). Project based organizations vary considerably in the kinds of products and services they produce, the level of market and technical uncertainty they must deal with, and their organizational complexity (Whitley, 2006). These project-based organizations are commonly encountered in sectors with complex capital goods and are often regarded as quite distinct from more conventional, functional forms of organization (Hobday, 2000). These organizations tend to run several projects concurrently (Teller, Kock, & Gemünden, 2014). Multiple simultaneous projects as a cohort are often referred to as a portfolio (Hopmere, Crawford, & Harré, 2020).

A project is the organization of people and resources to achieve a defined objective and purpose (Tuman, 1983). According to Pinto & Selvin (1988) a project is characterized by having a defined time for completion, limited budget, well defined and pre-set objectives, as well as a series of activities to achieve those objectives. In addition, Bresnen, Goussevskaia, & Swan (2004) describe that projects within organizations are often one-off, self-contained, temporary and complex tasks that do not fit into routine processes and often require specific management practices and dedicated modes of organization.

According to a research from the Project Management Institute (PMI) across all industries, the average percentage of projects that are deemed as failures is 14 percent (Project Management Institute, 2016). The PMI estimated that US$122 million is wasted for every US$1 billion invested due to poor project performance. However, that number only represents the total failures. When you look at a specific sector you can see that project failure is even more present. For example, according to a report from the PMI in 2017, 31 percent of the IT project that did not fail entirely did not meet their goals, 43 percent exceeded their initial budgets, and 49 percent was not finished within their time limits (Project Management Institute, 2017).

The subject of project failure has been researched in the past in multiple instances and in different companies in the world. A review of prior literature shows that many researchers have tried to determine what a failed project is. Practitioners and academics alike do not have a consensus regarding the definition of project failures (Pinto & Mantel, 1990) and it has been defined in numerous ways. Sauer (1993) considers a project as a failure only if there is a development or operation termination. From the behavioural aspect of project failure Shepherd, Patzelt, & Wolfe (2011) describe project failure as the termination of an initiative to create organizational value that

has fallen short of its goals. Yeo (2002) defines a failed project as a project that was cancelled or exceeded budget or did not meet its business goals.

In this research the stipulative or sensitizing perspective of project failure is based on Yeo (2002) and his definition of project failure. Project failure in this research signifies the following perspective: project failure is the financial failure of a project and specifically if a project exceeds its budget. Consequently, project failure will influence the financial part of the project result negatively. It will not affect the whole project result because the financial part is only a segment, but is always present and therefore a solid part, of the project result which is different for each company and project. It is an objective perspective since financial data is unambiguous and lacks the influence of opinions. This perspective was chosen in conjunction with Beaufort based on their preference, the objectiveness of the perspective and to narrow down the scope of project failure.

In addition to the multiple definitions of project failure, the literature also outlines causes, cascading failure, roles of leaders, behavioural aspects, psychological aspects and how to learn from project failure. Pinto & Mantel (1990) describe that causes of project failure are aggregate, implement, quality and user failure. When looking at project failure, projects often collapse due to cascading failures induced by a single task failure (Ellinas, Allan, Durugbo, & Johansson, 2015). A cascading failure is when one of the elements fails in a system of interdependent elements, which then causes a cascade of failures of other elements because of the elemental interconnections (Guoa, Guo, Dong, Zhao, & Han, 2019).

Other literature also takes the impact of the project leader into account. According to Szatmari, Deichmann, Ende, & King (2020), the expectations others create for high-status project leaders inhibits project leaders from meeting these expectations paradoxically. Szatmari, Deichmann, Ende, & King (2020) also state that high expectations coming from status also creates cognitive overload and overly positive evaluations resulting in major failures which potentially may even put the survival of some organizations at risk. Literature about learning form experience in project failure states that project failure is likely to generate a negative emotional response for those involved in the project (Shepherd & Cardon, 2009). According to Shepherd D. A., Patzelt, Williams, & Warnecke (2014) rather than having negative emotions over project failure, team members experience negative emotions over delayed termination that thwarts their ability to move on to the next challenge.

The strategy literature shows a clear divide into two main streams of antecedents of project failure: the rational and behavioural antecedents. The rational antecedents are based upon planning movement and planning thoughts. For instance and going back to some of the classical work on strategy, the general literature is pooled under what is referred to as the planning school. The planning school states that a process (or a project in this case) is a step-by-step process (Mintzberg,

Ahlstrand, & Lampel, 2008). The planning school is deliberate, rational and a linear process (Brews & Hunt, 1999). The planning school is also called the rational school (Papke-Shields & Boyer-Wright, 2017). Strategic planning can provide performance-enhancing efficiencies, but it can also cause inflexibility, therefore it can be called a bureaucratic process (Arend, Zhao, Song, & Im, 2017). This school is characterised by rational, structured and formalized ways of working. The fallacy of this approach is the detachment of doers and thinkers and that this approach only focusses on formalized and structured ways of working (Mintzberg, 2009).

In contrast, the behavioural antecedents are based upon cognitive thinking and the cognitive school. Exemplary of the recent advancements of a behavioural view in strategic management research are behavioural strategy under disruption (Foss, 2020) and behavioural strategy on management practice (Sibony, Dan, & Powell, 2017). According to Durand, Grant, & Madsen (2017) behavioural strategy is one of the prime areas of strategy. The cognitive school tries to understand what the process is in the sphere of the human mind and cognition (Mintzberg, Ahlstrand, & Lampel, 2008). This school is characterized by behaviour of humans and understanding their (cognitive based) actions (Mintzberg, 2009). The behavioural stream is about human cognition, emotions and social behaviour in the strategic management of organizations (Powell, Lovallo, & Fox, 2011; Sibony, Dan, & Powell, 2017). The behavioural stream is also present at the individual level where it is impossible for the behaviour of a single, isolated individual to reach a high degree of rationality (Zorn, DeGhetto, & Combs, 2020).

According to Stingl & Geraldi (2017), grouping the literature according to schools of thoughts is popular in project studies and beneficial for the development of research. The use of schools of thought enables a systematic search for gaps and competing theoretical explanations within and between schools (Stingl & Geraldi, 2017).

The behavioural stream takes human decisions and actions into account under various conditions of strategy execution. This includes its consequences for the temporal organizations as exemplified by project management in general, which is the context of this study. The behavioural stream is one of the key components of strategy (Foss, 2020) and one of the prime research streams in strategic management theory (Durand, Grant, & Madsen, 2017). Strategy is in turn connected to projects, which are often initiated as part of a broader strategic process (Papke-Shields & Boyer-Wright, 2016). In addition, Musawir, Serra, Zwikael, & Ali (2017) show that strategies (and strategic goals) are very important to project management and project success and thus indirect to project failure. Therefore, the behavioural stream, strategy and project management (and failure) are interconnected.

The behavioural stream and specifically behaviour during failure of a project is more focussed on the cognitive and human aspects of project failure. Organizational behaviourists and

Radboud Universiteit

social psychologists have studied this phenomenon repeatedly in the past and showed a common reoccurring behavioural antecedent. This reoccurring antecedent exist when organizational decision makers escalate their commitment to an ineffective course of action (Brockner, et al., 1986). According to Lee, Kei, & Wong (2020) project managers often face a difficult situation in which they must decide whether to continue or discontinue a troubled project. In such situations, project managers often escalate their commitment, choosing to continue the project despite signs that it may not be successful (Lee, Kei, & Wong, 2020). Failing projects are often allowed to continue for too long before appropriate management action is taken to discontinue or redirect the efforts. The escalation of commitment behaviour has been offered as one of the explanations for this (Keil, et al., 2000).

The escalation of commitment behaviour occurs when a responsible or non-responsible decision-making unit continues with a course of action to a failing project (Arkes & Blumer, 1985). Whyte (1986) stated that escalating commitment to a losing course of action is usually attributed to a need on the part of decision makers to maintain the illusion that they have not erred. This escalation of commitment theory and the common ground with project failure is explained more in dept in chapter two.

The present academic literature about project failure did not encompass literature about project failure in different companies in different sectors in one study simultaneously. There is a gap in the literature about studies that compare project failure (with a focus on behavioural antecedents) across multiple sectors (and companies) in a single research. Authors of academic literature about general antecedents of project failure want to examine/research antecedents of project failure in order to understand them and have significant impact on project success (e.g., Hughes, Rana, & Simintiras, 2017; Verner & Abdullah, 2011; Lehtinen, Mäntylä, Vanhanen, Itkonen, & Lassenius, 2014; Philip & Schwabe, 2018). Therefore, these authors call for further insight into antecedents of project failure. This thesis will try to fill this knowledge gap of project failure (with a focus on behavioural antecedents) in project organizations compared between different companies in different sectors. To address this gap, it will be interesting to research what the causes (antecedents) and effects of these project failures are on the results of project organizations. Escalation of commitment behaviour in a project failure context that contribute to the behavioural strategy is also important to look at.

In addition to the theoretical contribution of this thesis by addressing the research gap, there is also a practical gap with this subject. The practical gap is how to better anticipate, more accurately and timelier predict project failure based on these antecedents. The theoretical contribution will provide results to contribute to our knowledge on the practical gap as well. The research objective is linked to both contributions. The objective of this research is to fill the current research gap that has been described above about project failure, including antecedents, effects and escalation of

commitment behaviour. Consequently, leading to contributions on the theoretical and practical front.

The following research question is formulated to research the current research gap.

- What are rational and behavioural antecedents of project failure and how do these antecedents effect the project results in project organizations?

To answer the research question that is stated above, sub questions are formulated:

1. *What are the antecedents (rational and behavioural) of project failure in project organizations?*
2. *How do antecedents of project failure effect the project results?*
3. *What is the role of escalation of commitment as a prime behavioural antecedent on the project results in project organizations?*

The outline of this thesis will consist of five chapters. The thesis subject is introduced in this chapter, chapter one. After this introduction, a literature review and methodology chapter will follow to form the base of this thesis. Chapter four of the final master thesis will consist of the analysis of the data. From this analysis a discussion and conclusion will be formed. This final chapter of the master thesis will also state the implications of this research. After the main chapters are described, the references and appendixes will follow to form the full master thesis.

2. Theoretical background

Chapter two of this thesis describes the theoretical background of project failure. First a general literature review outlines project failure antecedents. Based on this review common ground between project failure and a fitting theory (theoretical lens) is explained. Secondly the fitting theoretical lens/theory is explained in more detail. The third paragraph explains and illustrates the conceptual model of this research. Lastly the academic contribution of this research is stated in paragraph 2.4.

2.1 Antecedents of project failure

Previous literature about project failure outlines general antecedents of project failure. The introduction of this study already explained that antecedents of project failure can be divided into two main streams, rational and behavioural antecedents. Rational antecedents can be characterized as very structured, formally and pre-defined ways of working (Mintzberg, 2009; Mintzberg, Ahlstrand, & Lampel, 2008). The rational antecedents are linear, deliberate (Brews & Hunt, 1999), structured, controlled (Papke-Shields & Boyer-Wright, 2017), bureaucratic and inflexible (Arend, Zhao, Song, & Im, 2017). Behavioural antecedents can be characterized as understanding the process, human actions and human decisions within this process (Mintzberg, 2009; Mintzberg, Ahlstrand, & Lampel, 2008). The behavioural antecedents are about social behaviour (Sibony, Dan, & Powell, 2017), human cognition, emotions (Powell, Lovallo, & Fox, 2011) and mental aspects (Gavetti, 2012).

The behavioural stream takes human decisions and actions into account (Powell, Lovallo, & Fox, 2011). Whereas the rationale stream only takes the perspective of a pre-determined and very structured/formal process into account. It is important that antecedents can be identified and characterized by the two main streams. This will be beneficial for coming parts of this study to research specific antecedents more in detail (e.g., escalation of commitment behaviour, which is explained in paragraph 2.2).

When searching for antecedents of project failure (in general and in specific sectors) a clear distinction was present between the sectors. The sectors that are researched in this thesis are the construction, shipping, offshore and the IT sectors (why these sectors where chosen, is described in paragraph 3.2). Much has been written about the antecedents of project failure in the constructing and IT sectors. In contrast to the construction and IT sectors, the literature in the shipping and offshore sectors only outlines a few results.

To give a clear overview of the different literature per sector, table 1 is included below (page 9). This table shows the study, which method is used, the terminology of antecedents, sector and which antecedents are present. A list of different terminology is added because each article uses different terminology to describe antecedents of project failure. For each article these terms are

compared to the context of project failure to validate if each terminology is the same concept as antecedents of project failure. Finally, each antecedent is categorized as a rational antecedent, behavioural antecedent or a combination of both. This is included to display which antecedent belongs in which stream and to indicate how many of the different antecedents are present in the current literature.

Lastly the literature about antecedents of project failure indicates that the way of acquiring a project is linked to project failure. Lauesen (2020) states that the acquisition of a project is one of seven antecedents of project failure. This antecedent is based upon three indicator that show how the way of acquiring a project can lead to project failure. According to Shahhosseinia, Afshar, & Amiri (2016) project failure that originates from acquisition, can be divided into the feasibility or the tender phase of the acquisition. These phases contain several indicators that can cause failure in the acquisition phase. In addition, Verner & Abdullah (2011) outline that lack of experience and expertise with contract management is a major antecedent of project failure in the acquisition phase. Lack of experience in contract management and the relationship between both parties (based on lack of trust and cooperation) can cause project failure in the acquisition phase (Verner & Abdullah, 2011). This exhibits that the way of acquiring a project and the history (experience) between both parties is important in the acquisition process.

Radboud Universiteit

Study	Method	Terminology of antecedents*	Sector	Specific antecedents (R = rational antecedent, B = behavioural antecedent and R/B = rational as well as behavioural antecedent)
(Lehtinen, Mäntylä, Vanhanen, Itkonen, & Lassenius, 2014)	Mixed methods	Common causes of failure	IT	People (B), methods (R), tasks (R/B) and environment (R/B)
(Verner & Abdullah, 2011)	Case study qualitative	Risk factors (leading to failure)	IT	Complexity (R), contract (R), financial (R), legal (R), scope & requirements (R), planning & control (R/B) and execution (B)
(Hughes, Rana, & Simintiras, 2017)	Literature review	Categories of failure	IT	Correspondence (B), process (R), interaction (B) and expectation failure (B)
(Kappelman, McKeeman, & Zhang, 2006)	Mixed methods	Early warning signs of failure	IT	Management support (B), project manager (B), stakeholder involvement (B), commitment project team (B), requisite knowledge/skills (R/B), overscheduled (R), documented requirements (R), change control process (R/B), schedule planning (R), communication among stakeholders (B), resources priority (R) and proper business case (R)
(Damoah & Kumi, 2018)	Quantitative	Causes of failure	Construction	Leadership (B), management and administration practices (R/B), resources (R) and external forces (R/B)
(Doloi, 2013)	Quantitative	Indicators of failure	Construction	Accurate project planning and monitoring (R), design efficiency (R), effective site management (B), communication (B), contactors efficiency (R/B), project characteristics (R), due diligence (R) and market competition (R)
(Shahhosseinia, Afshar, & Amiri, 2016)	Mixed methods	Factors of failure	Construction	Contractor-related factors (R/B), client-related factors (R/B), consultant-related factors (R/B) and external factors (R/B)
(Nitithamyong & Skibniewski, 2006)	Quantitative	Factors of failure	Construction	Project (R), project team (R/B), service provider (R/B) and systems characteristics (R)
(Philip & Schwabe, 2018)	Qualitative	Early warning signs of failure	Offshore	Trust (B), team cohesion (B), common understanding deliverables (B), shared concepts about execution (B), acting on escalations (B), openness to discuss problems (B), cultural intelligence (R), collaboration (B), communication structures (R), team coordination (R/B) and knowledge transfer (R/B)
(Haji-kazemi, Arica, Semini, Alfnes, & Andersen, 2015)	Literature review	Early warning signs of failure	Shipping	Product changes (R), delays in engineering drawings (R), unpredictable events (R/B), quality problems (R), over evaluation partner skills (R), delay delivery equipment (R), poor quality of design (R), poor risk management (R) and inadequacy of supplier competence (R/B)

Table 1: Overview literature - antecedents of project failure per sector

*All articles are related to project failure.

Table 1 gives an overview of which antecedents are present in each sector and which antecedents are rational or behavioural (or both). The last column of table 1 consists of this distinction between rational, behavioural or both. Each antecedent is specified as one of those three categories. This specification is based on the chapter 1 and paragraph 2.1 of this research. Chapter 1 and paragraph 2.1 detailly explain of which characteristics the rational and behavioural stream consists of and on grounds of these characteristics the antecedents of the general literature of project failure have been specified as rational, behavioural or both.

Based on table 1, a generic list of antecedents of project failure is constructed (this will be used in the interview protocol). The list is constructed based on the most occurring antecedents across the various sectors, as stated in table 1. The most occurring antecedents according to table 1 are: human aspects, financial aspects, legal aspects, governance aspects, complexity, design, scope & requirements, contact & communication, customer, planning/monitoring/control and executing & effective site management. The aspects in this list are not mutually exclusive and should be defined in more detail to prevent overlap.

Table 1 also shows that every article about project failure antecedents has one or more antecedents related to the behavioural aspect of project failure. According to Lehtinen, Mäntylä, Vanhanen, Itkonen, & Lassenius (2014) people are one of the four main causes of project failure. Kappelman, McKeeman, & Zhang (2006) divided their dominant dozen early warning signs of failure into two categories: process and people related early warning signs. Shahhosseinia, Afshar, & Amiri (2016) also categorize failure in four categories. Three of those four categories (contractor-related factors, client-related factors and consultant-related factors) are mainly based on human failure. Nitithamyong & Skibniewski (2006) describe the human aspect as one of the four prime characteristics of failure factors. Nitithamyong & Skibniewski (2006) shows sixteen indicators that can cause these human related project failures.

In addition, table 1 shows that behavioural antecedents and specifically escalation of commitment behaviour is reoccurring in literature about project failure. Based on the prior literature review and table 1, this antecedent is very relevant to research as a prime behavioural antecedent. To illustrate this further a few examples of the table are listed below. According to Philip & Schwabe (2018) one of the early warnings signs is how humans react appropriately on escalation situations. Human behaviour and escalation of commitment behaviour is also mentioned in Damoah & Kumi (2018). Damoah & Kumi (2018) describe (human) leadership as one of the four factors of project failure. The leadership factor is formed based one the indicator of when a project is not needed anymore and therefore escalation of commitment takes place. Verner & Abdullah (2011) describe human escalation behaviour as inadequate disaster recovery during project operations.

Lastly table 1 shows that stakeholders, environment, culture, politics and prior experience are also interesting antecedents to consider researching. This research will focus on rational and behavioural antecedents (so all general antecedents) with a focus on the behavioural antecedents of escalation of commitment. Therefore, the topics above will be included in the research when they appear in the findings of the general antecedents of project failure. However, the focus of this study regards one specific behavioural antecedent, namely escalation of commitment behaviour. Therefore, due to narrowing down the scope of the study and consequently its feasibility the other mentioned aspects will not be the focal point of this research.

2.2 Project failure under behavioural constraint

The systematic literature review of project failure in paragraph 2.1 draws up a series of antecedents of project failure that are divided in the two streams (rational versus behavioural). This contrast is also present at the individual level. According to Zorn, DeGhetto, & Combs (2020), it is impossible for the behaviour of a single, isolated individual to reach a high degree of rationality.

The findings of table 1 displays the contrast between rational and behavioural antecedents clearly. It exhibits that the behavioural stream is very commonly reoccurring in project failure. Behavioural denotes ''being about mental processes'' (Gavetti, 2012, p. 1). Behavioural strategy locates its micro-foundations in the imperfect mental processes of strategic leaders, especially regarding the cognitively distant opportunities that are the typical objects of strategy (Vaara & Whittington, 2012). The behavioural strategy is based on cognitive and behavioural science (Stingl & Geraldi, 2017). Escalation of commitment is one of the prime cognitive biases (Powell, Lovallo, & Fox, 2011). Therefore, it is clearly linked to the cognitive school and behavioural stream/strategy versus the rational stream. A series of empirical (behavioural) studies have researched the relevance of individual biases in specific project phenomena. One of the two main project phenomena that was studied was the escalation of commitment (Stingl & Geraldi, 2017). According to Weeth, Prigge, & Homburg (2020) escalation of commitment is an irrational tendency (behaviour) even though the more beneficial option would be rational. These articles show that behaviour versus rational is very contrasting and that escalation of commitment behaviour is one of the primary behavioural antecedents.

Based on the reoccurrence of behavioural antecedents in project failure literature, this study addresses the role of escalation of commitment as a prime behavioural antecedent of project failure. Escalation of commitment behaviour, which is common at the individual as well as the organizational levels (Brockner, et al., 1986), has been called entrapment (Brockner & Rubin, 1985), the sunk cost effect (Northcraft & Wolf, 1984), the knee-deep-in-the-big mud effect (Staw, 1976) and the too much

invested to quit effect (Teger, 1980). Escalation of commitment can be individual or collective, but is a cumulative phenomenon (Denis, Dompierre, & Ann Langley, 2011).

The escalation of commitment behaviour occurs when a responsible or non-responsible decision-making unit continues with a course of action that is delivering unexpected negative feedback and there is either some or no prospect of eventual goal attaining (Staw, 1976). According to Arkes & Blumer (1985) the escalation of commitment is an increased commitment to a previous decision despite evidence that it may have been wrong. In managerial decision-making escalation of commitment can refer to either continuing with a failed or dud project. This behaviour and how Arkes & Blumer describe it, is specifically aimed at a dud or failing project. In addition to Arkes & Blumer, Staw (1981) describes that when people who have suffered a setback want to recoup their losses through an even greater commitment of resources to the same course of action, then a cycle of escalating commitment can be produced.

Literature also outlines direct links between escalation of commitment behaviour and project failure. The escalation of commitment behaviour occurs when a responsible or non-responsible decision-making unit continues with a course of action to a failing project (Arkes & Blumer, 1985). When a decision maker has invested in a course of action (in a project) and the project starts to go poorly, the decision maker can respond in various ways (McNamara, Moon, & Bromiley, 2002). Decision makers often respond in ways that appear inappropriate. Inappropriate responses can include: inappropriate persistence in the project beyond the point when a rational analysis would recommend exit; refusal to acknowledge that the project has deteriorated; and unwarranted increased investment in a project, called escalation of commitment in the literature (McNamara, Moon, & Bromiley, 2002).

Aronson (2018) identified the main drivers of escalation of commitment. The main drives are: social (peer pressure), psychological (gambling), project (past commitments) and structural (cultural and environmental factors). So, according to Aronson (2018) a project and its past commitments are one of the four main drivers of escalation of commitment.

According to Sleesman, Conlon, McNamara, & Miles (2012), there are four determinants of escalation of commitment: project, psychological, social and structural determinants. This study also showed that (1) having explicitly chosen a failing course of action may result in no higher levels of escalation than having been merely assigned responsibility for such a choice; (2) the prominence of sunk costs was lower than expected; (3) opportunity cost salience can lead to de-escalation in some situations, but escalation in others; and (4) the sharing of decision authority may lead to greater levels of escalation (Sleesman, Conlon, McNamara, & Miles, 2012).

According to Brockner (1992) many (but not all) explanations of why to escalate can be explained by either one of two broad categories. Category one is explained with the expectancy

theory of Vroom. This theory says that decision makers assess the probability that additional resource allocations will lead to goal attainment, as well as the value of goal attainment (rewards minus costs), and thereby generate a subjective expected utility associated with the decision to allocate additional resource (Vroom, 1964). The second category is the self-justifying or rationalizing behaviour that originates from Festinger's theory of cognitive dissonance. This theory says that that decision makers becomes entrapped in a previous course of action because of their unwillingness to admit to themselves and/or others that the prior resources were allocated in vain. In other words, people do not like to admit that their past decisions were incorrect (Festinger, 1957).

The idea that issues within a project arise from systemic causal sets of reactions is gaining increasing recognition (Williams, 2017). Keil and Mähring (2010) identified a key problem of project escalation as seeing problems as isolated incidents, so that a piecemeal approach to solving the problems is ineffective because this approach does not get to the "underlying root causes of problems'' (Keil & Mähring, 2010, p. 8). This is important for the effect of multiple antecedents of project failure and the cascading failure (as described in chapter 1) on the project result.

Apart from the definition of the escalation of commitment, the main determinants and the explanations from why people escalate, the theory also goes more in dept on the psychology side of the subject. The psychology side of the subject is explained in the article 'the role of anticipated regret in escalation of commitment'. This article states that escalation of commitment is stronger when the possibility of future regret about withdrawal is high than when this possibility is low (Wong & Kwong, The Role of Anticipated Regret in Escalation of Commitment, 2007). It also states that people in escalation situations are simultaneously influenced by the emotions they expect to experience in the future (anticipated regret) and by events that have happened in the past (responsibility for the initiating previous decision) (Wong & Kwong, The Role of Anticipated Regret in Escalation of Commitment, 2007).

According to Wong, Yik & Kwong (2006) emotions play a role in the escalation of commitment. Negative effect was negatively correlated with escalation tendency when one was personally responsible for a prior decision (when someone was not responsible, the effect disappeared). This pattern of results is consistent with the coping perspective, suggesting that people seek to escape from the unpleasant emotions that are associated with escalation situations (Wong, Yik, & Kwong, Understanding the Emotional Aspects of Escalation of Commitment: The Role of Negative Affect, 2006).

More specific literature outlines for example the escalation of commitment in troubled IT projects. It states that project managers are likely to underestimate the risks of a project with endogenous risk factors as compared to a project with exogenous risk factors. Results of this study

point to a self-efficacy bias where project managers with higher self-efficacy may underestimate the risks of a troubled IT project as compared to project managers with lower self-efficacy (Jani, 2010).

Using the escalation of commitment theory as a prime antecedent of project failure implicates that this study will focus strongly on behavioural aspects of project failure. This relates considerably to the existing literature on project failure antecedents, as is shown in the literature review of paragraph 2.1.

Prior literature shows how particular antecedents of project failure relate to escalation of commitment and in what way. Sleesman, Conlon, McNamara, & Miles (2012) illustrate six main antecedents and how they relate to escalation of commitment. **(1) Decision risk** relates negatively to escalation of commitment behaviour because risk increases the likelihood of loss and the salience of loss potential; to decision makers, lessening the likelihood of escalation even in the face of information on previous performance (Schaubroeck & Davis, 1994). **(2) Opportunity cost information** relates negatively to escalation of commitment behaviour because it provides a clear decision benchmark and allows decision makers to consider alternatives in their calculation of whether or not to escalate (Northcraft & Neale, 1986). **(3) Information set (information acquisition)** relates negatively to escalation of commitment behaviour because providing information about a decision reduces ambiguity, which can reinforce the poor prospects for the decision (Bragger, Hantula, A., Kirnan, & Kutcher, 2003). **(4) Information set (decision uncertainty)** relates positively to escalation of commitment behaviour because uncertain information on decision prospects allows decision makers to focus on positive indicators (Bragger, Bragger, Hantula, & Kirnan, 1998). **(5) Positive performance trend information** relates positively to escalation of commitment behaviour because it allows decision makers to focus on the potential positive outcomes of the situation and discount worst-case scenarios (Moon & Conlon, 2002); thus, decision makers expect greater utility in such circumstances. **(6) Expressed preference for initial decision** relates positively to escalation of commitment behaviour because decision makers may escalate simply because they value, and hence have a strong preference for, the given course of action (Schulz-Hardt, Thurow-Kröning, & Frey, 2009). These six aspects show the knowledge on relationships on how particular antecedents of project failure relate to escalation of commitment.

In addition to what is shown above prior literature also illustrates that this theory has been used in other similar contexts. Escalation of commitment behaviour has also been applied in general context. For example, the escalation of commitment in an ineffective course of action (Whyte, 1986) and escalation of commitment in a failing course of action (Staw, 1981). Escalation of commitment is also common in psychological research where Wong, Yik, & Kwong (2006) exhibit the emotional aspects and Wong & Kwong (2007) describe role of regret. Lastly escalation of commitment is also used in financial theories for instance in sunk costs (Northcraft & Wolf, 1984) and Garland (1990)

who links it to sunk costs of projects and organizations. These studies differ in the subject in which the escalation of commitment is an applied to (general, psychology or financial subjects). But these studies are researched in the same context of escalation of commitment in organizations. They can therefore be used (compare methods, study setup and documentation) during this study to improve the overall quality of the thesis.

All the prior literature above shows why escalation of commitment is a prime behavioural concept related to project failure and behavioural strategy. It also shows what components, drivers and causes escalation of commitment consists of. Furthermore, it outlines various relationships with other antecedents of project failure. Lastly, it links to project failure in practice and shows in what similar context escalation of commitment has been researched before. These articles regarding escalation of commitment show that it is very reoccurring and present theme within project failure. Even so they illustrate that an escalation of commitment (as shown in other studies, Philip & Schwabe, 2018; Damoah & Kumi,2018; Verner & Abdullah, 2011) is a major part of project failure caused by behaviour of humans. Therefore, it is very interesting to research this human behaviour and if the relationships between escalation of commitment, behavioural antecedents and project failure is also present in the natural setting/real-life context. Moreover, it is important to research this further to see what meanings people attribute to it and to understand the perspective of those involved within this natural settings/real-life context.

2.3 Conceptual model

To answer the central question of this research, it is important to get more insight into the antecedents and the combination of antecedents of project failure. It is also important that this research will shed light on escalation of commitment behaviour (as stated in paragraph 2.2) related to project failure. A conceptual model can provide an internal structure that provides a starting point for observations, interview questions and analysis (Jabareen, 2009). A conceptual model/framework is a visual or written product, one that explains, either graphically or in narrative form, the main things to be studied (Maxwell, 2005). The conceptual model/framework gives a visual representation of what the study is about (Marshall & Rossman, 2014). Constructing a conceptual model for this study will therefore be useful to give a better understanding of the research approach. It will represent the theory-based collection of principles that are relevant to this thesis in order to address the goals and research questions of this study. Therefore, the following conceptual model is constructed.
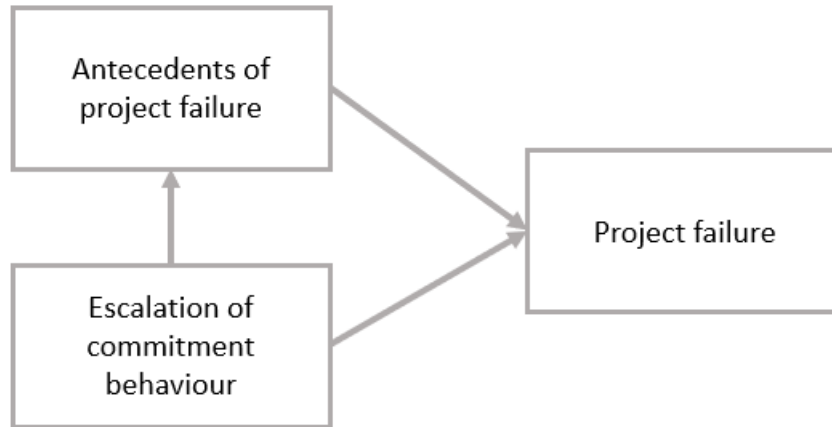
Figure 1: Conceptual model – project failure

Figure 1 shows a visual representation of what this study is about. It consists of two independent variables that affect the dependent variable. In this research the antecedents of project failure and escalation of commitment behaviour are independent variables. The dependent variable of this research is project failure. Also, escalation of commitment behaviour is linked to antecedents of project failure. This is because escalation of commitment behaviour is a prime behavioural antecedent of project failure. Therefore, it is clearly linked to antecedents of project failure. The conceptual model shows that the antecedents of project failure and escalation of commitment behaviour will affect project failure. So, both the independent variables will affect the dependent variable in this study.

2.4 Academic contribution

This study continues with the gap/academic relevance of behavioural strategy. That gap was defined as ''the aims and boundaries of behavioural strategy remain unclear'' (Powell, Lovallo, & Fox, 2011, p. 1). This study will contribute (to further our knowledge on) on the aims and boundaries of behavioural strategy. In this study the academic relevance will consists of the contrast of the rational versus the behavioural antecedents. With a focus on advancing the current knowledge of behavioural strategy specifically aimed at the escalation of commitment behaviour in a project failure context.

The academic contribution will ultimately consist of more insight in the specific behavioural antecedent of escalation of commitment and general insight in antecedents of project failure. Insight in general antecedent will further our knowledge on which and how many rational and behavioural antecedents are present in the current context of project failure. Escalation behaviour is one of the primary streams of behavioural strategy (Powell, Lovallo, & Fox, 2011). Therefore, specific research

of escalation of commitment behaviour will contribute directly to advancing our knowledge of behavioural strategy. Both of these aspects will form a contribution to the contrast between rational and behavioural antecedents and ultimately the behavioural strategy.

The implications of this research are aligned with the academic contributions. The results from this study can be important for theory and practice of project failure, its antecedents and the behavioural (strategy) stream. It also creates an opportunity for future research on this specific subject. As stated in paragraph 2.2, this study only focusses on one behavioural lens (escalation of commitment behaviour). Therefore, many possibilities for future research arise to research the context of project failure with a focus on other behavioural aspects. This to ultimately contribute to the gap of the current aims and boundaries of behavioural strategy.

3. Methodology

In this third chapter the methodology of the research will be explained. This consists of the research method, its sample and the data sources. The data analysis procedure and the interview protocol will also be described. In the last paragraph the ethics of the research are displayed.

3.1 Method

Qualitative research focusses primarily on the meaning that people attribute to the situation and events, the researcher is seeking to understand perspective of those involved (Myers, 2013). Qualitative research does not consist of one single approach. It is rather a heterogeneous set of approaches (Gehman, et al., 2018) and different approaches often presume distinct ontologies and epistemologies, resulting in different assumptions about the nature of theory and the relationship between theory and method (Morse, et al., 2009; Sandberg & Alvesson, 2011).

According to Denzin and Lincoln (2000) qualitative research involves an interpretive, naturalistic approach to the world. Meaning that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of meanings people give to them (Denzin & Lincoln, 2000). Literature about project failure will enhance our understanding at first and the qualitative research will contribute to our knowledge on the subject. The theoretical framework will be a strong base for the qualitative case study.

The qualitative section is a case study, because it is an empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 2014). It is a multiple case study because multiple cases are compared to see the patterns of the social phenomena (Yin, 2014).

Development of theory is a central activity in organizational research. Traditionally, authors have developed theory by combining observations from previous literature, common sense, and experience (Eisenhardt, 1989). According to Gehman et al., (2018) there are three main qualitative approaches to theory building: Eisenhardt, Gioia and Langley approach. To generate a theory that can be tested deductively, the Eisenhardt method is best applicable; to understand the lived experiences of informants, the Gioia method can be used; and to understand temporal or practice dynamics in organizational life, Langley's approach can be the source of inspiration (Gehman, et al., 2018).

In this study testing the theory of which rational and behavioural antecedents of project failure and which relationships between escalation of commitment, behavioural antecedents and project failure are present is the focal point of this study. Therefore, the Eisenhardt method is used to build theories from case studies in this research. This is in line with the central aim of the

Eisenhardt method which is to build theory, especially with multiple cases and theoretical logic with defining features of research questions without obvious answers, careful case selection, well-identified constructs and relationships, theoretical arguments, boundary conditions (Eisenhardt, 2021).

According to Pettigrew (1988), given the limited number of cases which can usually be studied, it makes sense to choose cases such as extreme situations and polar types. By selecting cases that differ maximally from each other but still encompass the same social phenomenon, the researcher can determine whether certain explanatory factors are present in all cases or whether they are merely sometimes occurring. When a certain factor is not present in all cases, the researcher can conclude that this factor is not a necessary condition for the occurrence of a social phenomenon (George & Bennett, 2004). By selecting cases that differ maximally except the occurrence that has to be explained, this is referred to as the method of agreement (George & Bennett, 2004; Mill, 1974).

The method that is used in this thesis to acquire this qualitative data is in the form of interviews and these are semi-structured. Semi-structured interviews are interviews that use preformulated questions, but have no strict adherence to them. New questions might emerge during the conversation (Myers, 2013). Semi- structured interviews are preferred with this type of research because the researcher can decide which questions will be asked without guiding the interviewees to a specific answer (Myers, 2013). Semi-structured interviews will also increase the reliability of the research because all the interviewees get the same questions. Thus, the research design for this thesis will be a combination of a literature review and a qualitative (multiple) case study.

A common problem with validity in qualitative studies is related to the fact that most qualitative researchers work alone in the field (Ebneyamini, Reza, & Moghadam, 2018). To ensure a good validity of the interview, every interview has been conducted by two interviewers (except one due to planning issues). This is preferred because the addition of an interviewer can ensure that all the necessary questions are asked objectively and without guiding the interviewees to a certain answer. While conducting the interviews, the interviewers will not be writing a full summary during the interviews. This method is preferred due to the fact that the interviewers will solely focus on conducting the interviews and therefore will reduce the amount of distractions during the interviews.

An additional factor that plays a role whilst conducting the interviews for this research is the covid pandemic. As a result of the covid pandemic physical contact is restricted during this master thesis (01-02-2021 till the beginning of July 2021). Normally interviews would be conducted face to face in a physical form. The alternative used in this study is conducting most of the interviews with an online program, called Microsoft Teams. Microsoft Teams is an application which can be used to

have digital meetings with multiple people. Using Microsoft Teams has positive and negative aspects. Positive aspects are that interviews are easy to record and that it reduces travel time to a physical locations. Negative aspects are that a stable internet connection from all the participants is required and that not everyone is aware of how Microsoft Teams works. During this research the positive aspects were mainly present and only on one occasion the negative aspect of an unstable internet connection occurred. Therefore, the appliance of Microsoft Teams was a very suitable replacement of physical interviews.

During the interviews of this research, only two interviews were conducted face to face in a physical form. Two interviewees had a strong preference for a physical interview instead of an online interview. For these two specific cases all covid measures were taken into account and the interview format was exactly the same as the online interviews.

The method of writing this research is mainly based upon three qualitative methods sources (Eisenhardt, 1989; Yin, 2014; Myers, 2013) and several academic publications. For the systematic literature review the academic article of (Hanelt, Bohnsack, Marz, & Marante, 2020) was used because this article shows how to write a literature review anno 2020. The academic literature was selected based upon the following criteria of the article: relevance, recentness, top 50 management journal, high rated journal/JIF score and the rating of the authors/H index score. The researcher followed these criteria strictly and selected all of the articles within this master thesis based upon them.

For the format of the results and the case comparison three articles were used, (Correani, Massis, Frattini, Petruzzelli, & Natalicchio, 2020; Wilson, Pelham, Connell, & Duffield, 2016; Loch, Mähring, & Sommer, 2017). These articles were used because they are relatively recent case studies that regard projects and therefore have a similar context. In addition, the article of Pan, McNamara, Lee, Haleblian, & Devers (2018) was used because this article is based on a different context (communication of top managers), but shows how a high rated (strategic) management journal draws up their results/findings in a clear, concise and structured way. Other top-rated journals (e.g., Administrative Science Quarterly and Journal of Management Studies) have many relevant and recent articles that use similar ways/formats of presenting results, even in a project context. For instance Szatmari, Deichmann, Ende, & King (2020) apply it in project context, Kim (2021) applies it in another context (frame restructuring) and also older literature of Shepherd D. A., Patzelt, Williams, & Warnecke (2014) apply it in a project failure context. This shows that the current method of describing the results is frequently used and is consequently validated in the field.

Furthermore, many other academic articles and books were used during this study (which are stated in the reference list). Moreover, the academic articles that are described above, were the main sources that were used as guidelines throughout this study.

3.2 Sample and data sources

Paragraph 3.1 already stated that this is a case study. According to case study analysis from Eisenhardt, the best way to perform a case study is to have 4-10 cases (Eisenhardt, 1989). The cases for this research will be selected in alignment with Beaufort. This will be based on their preference and which companies seem to be most informative to answer the central question of this research. The companies will be selected from the construction, shipping, offshoring and IT sectors. These sectors are chosen in collaboration with Beaufort and because they are a solid foundation to compare the project failure antecedents across sectors.

For this case study polar types also known as cases that differ maximally are required to have contrasting views (Eisenhardt, 1989). The most recent literature about the Eisenhardt method stated that this method is still solely aimed at ''theory building with its core features are the implications of that aim like open-ended research questions, theoretical sampling of cases, well-identified constructs and relationships, and underlying theoretical argument'' (Eisenhardt, 2021, p. 10). Therefore, the theoretical case sampling based on the contrasting views is still very important in recent qualitative case studies.

Based on the literature review of the general antecedents of project failure and based upon expert opinions of Beaufort, the contrasting views of the acquisition of a project is determined. The literature review in paragraph 2.1 shows that the way of acquiring a project is strongly related to project failure. Even so the experts working at Beaufort recognize that the acquisition of a project is an important aspect of project failure/success (Beaufort Corporate Consulting, 2020). Acquisition will be used as contrast of the interview cases and therefore also be researched as a part of this study. It is specifically about the acquisition of a project based on current contacts (current relation) versus acquisition of a project based on open acquisition (no past relationship between both parties). The sample for the interviews will ultimately consist of four sectors and the two contrasting views.

Table 1 in paragraph 2.1 shows that different types of projects and characteristics of projects can influence project failure. To obtain a full perspective of project failure, this research retains a broader view regarding the project type (therefore includes all types of projects). This study does not narrow down its scope regarding the cases based on types of projects. If an interesting finding related to the type of project and antecedents of project failure arises, then these will be exhibited in the within-case results (paragraph 4.1).

During this research, the researcher worked continuously with Beaufort on this study. This research will be part of a publication related to project failure that will be realised by Beaufort. Therefore, continuous contact and communication between the researcher and experts of Beaufort was required during this study. This contact contained regular meetings with Beaufort consisting of general, group think, brainstorm and research scope and design sessions. During this research more

than twenty personal meetings between Beaufort and the researcher have taken place to align the research and company requirements.

During these sessions with Beaufort in February and March, 16 specific cases (of Beaufort's current network) for the interviews have been selected and these were all directly accessible. In order for this research to remain generalizable, the perspectives per interviewee are very important. According to Shepherd D. A., Patzelt, Williams, & Warnecke (2014) the perceptions of project failure will likely differ between those who own the option (the decision maker) and those who are the option (project team members). Thus, it is important that multiple perspectives are interviewed. Otherwise, one perspective would determine the empirical data for that perspective and a high chance of subjectiveness can occur. The format of how the cases can be structured (in this research) are based upon similar case studies. Similar case studies show how the Eisenhardt method is applied in a project context (Choi & Miller, 2020; Shepherd D. A., Patzelt, Williams, & Warnecke, 2014) and how multiple perspectives can be applied in a project setting (Correani, Massis, Frattini, Petruzzelli, & Natalicchio, 2020; Wilson, Pelham, Connell, & Duffield, 2016). For a clearer display of what is stated above about the sample of the interviews, table 2 is included. This table shows the contrasting views, number of companies and number of interviewees.

Acquisition of a project based on current contacts	Acquisition of a project based on open acquisition
Two different companies in the construction sector	Two different companies in the construction sector
Two different companies in the shipping sector	Two different companies in the shipping sector
Two different companies in the offshore sector	Two different companies in the offshore sector
Two different companies in the IT sector	Two different companies in the IT sector
Total number of interviews, 16: four sectors x four interviews per sector	

Table 2: Interview sample selection

As stated above the interviews will be conducted in four sectors and will be selected in alignment with Beaufort. These companies are from the current network of Beaufort. The cases (companies in this research) are selected based upon the contrast of acquiring a project. The cases all have current or past experienced with project failure and have extensive expertise with projects. Because this study also researches project failure within these cases in the past, it also has a retrospective aspect/sensemaking. A requirement of the cases is that the company should be a project-based organization. This is validated by the experts of Beaufort during the initial contact of arranging the interviews and for a second time during the introduction of each interview. The interviews will be fully anonymous and therefore the names of the cases will not be present in this research. The transcript of each interview states in which sector the interviewee works and what

type of acquisition is present. These transcripts are included in a separate file: Transcripts master thesis - project failure.

To maintain a good validity of this research, multiple people with different positions within projects were interviewed. Which led to interviews with multiple perspectives. This was done to ensure that the results of this research are not solely based upon one perspective. Therefore, multiple interviewees per perspective have been interviewed. The function of each interviewee is stated at the top of each individual transcript. The 16 interviews that form the case study of this research contain the perspectives of: CEO's, CFO's, project managers/project directors, other executives (CRO, COO and president of projects) and partners/investors. This combination of perspectives will form an overall broad view on project failure.

3.3 Data analysis procedure

The data that will be derived from the samples will be recorded interviews. Recording the interviews is essential to capture/document all the detailed information and to ensure a good reproducibility of the research (Ebneyamini, Reza, & Moghadam, 2018). Because this research initially had a large number of interviews, possibilities were explored to analyse the data without making full transcripts of all of the interviews. By using an alternative method, the possibility of conducting 32 interviews would be feasible in this short time span of the master thesis (six months). A detailed planning of the master thesis trajectory is included in appendix A. In order to use an alternative method, it is of the utmost importance that every step is traceable and reproducible by others. It is also important that all the collected data, should be recorded and accessible in order to ensure the reproducibility of the research.

Alternative methods were used and analysed to see how feasible it would be to use automatic transcribing software without reducing the reliability too much. This was done by comparing a manual transcript and a transcript produced by automatic transcribing software. Automatically transcribing reduced the time of transcribing each interview to only the full length of the interview itself. Although automatic transcribing would reduce the transcribing time significantly multiple downsides were present. Each sentence contained one, two or even more spelling or grammatical issues. In some cases, complete words were replaced by words that were not even in the same context. Therefore, the reliability of all transcripts would be reduced massively because it would contain too many errors and overall wrong information would be the result of this way of transcribing.

After a thorough consideration the option of transcribing each interview manually was chosen instead of automatically transcribing them. In order to ensure a good feasibility of the

research, the amount of interviews needed was reduced. Therefore, the amount of interviews has been reduced from 32 to 16. This due to the fact that transcribing 16 interviews manually is feasible and this would improve the reliability greatly (relative to conducting 32 interviews and not transcribing them manually).

The 16 interviews that will form the base of this research will be fully transcribed. As already stated, all interviews will be conducted by two interviewers to ensure the validity of the research questions/interview. For these transcripts an audio recording of each interview was required and this will consequently increase the reliability of the research (Ebneyamini, Reza, & Moghadam, 2018). Every company in this research agreed/opted that the interviews would be fully anonymous and gave their consent that the interviews could be recorded. Consequently, every name (company or person) and specific project names are removed from the transcripts.

After all the interviews were fully transcribed, codes were assigned in order to analyse the data (Myers, 2013). A computer program named ATLAS ti was used for the coding the interview transcripts. ATLAS ti was chosen for coding the interviews in this research because it separates the codes, combines different codes in one code tree and it forces the researcher to use the same coding format for all of the interviews. This is important because it will ultimately increase the reproducibility and the reliability of the research (Ebneyamini, Reza, & Moghadam, 2018). Project related literature in a similar case study context exhibits how codes can be used to identifying patterns that match (Correani, Massis, Frattini, Petruzzelli, & Natalicchio, 2020; Shepherd D. A., Patzelt, Williams, & Warnecke, 2014; Verner & Abdullah, 2011).

The inductive method of coding is applicable in this research. This method is used when theoretical statements are derived from empirical material (Boeije, 2005). When using the inductive method open, axial and selective codes are assigned in multiple phases to later form a code tree that will form the base of the results of the interviews. This analytical process was iterative, with multiple rounds of coding. This format of coding with different phases, first and second order constructs, is chosen based upon previous academic studies. Recent academic literature illustrates coding based upon multiple phases and these constructs like stated above, to ensure a good and reliable coding process (Hanelt, Bohnsack, Marz, & Marante, 2020; Kim, 2021).

3.4 Interview protocol

The interview protocol was constructed based on prior relatable research and the most important aspects of project failure (based on chapter 2). The prior relatable research of (Choi & Miller, 2020; Wilson, Pelham, Connell, & Duffield, 2016) was used because both studies took place in a project context. It is of the utmost importance that the interview protocol is a good representation of the

research (research questions and objectives) otherwise the validity would be in jeopardy. To ensure the validity of the interview protocol was up to par, the protocol was made in conjunction with experts form Beaufort and Dr. H.L. Aalbers. This was an iterative process of adjusting and implementing feedback to ensure that the final protocol was adequate. Because Beaufort and Dr. H.L. Aalbers worked alongside the researcher on the interview protocol, expert validity was established whilst constructing the protocol. The final interview protocol is included in appendix B.

The final interview protocol consists of five parts. A general part with general questions about the company, type of acquisition and its projects. The second part contains questions about the list of statements that the interviewees were asked to fill in before the interview. The list of statements is included in appendix C. The third and fourth part contain questions regarding the antecedents of project failure. The third part is specifically aimed at the general antecedents of project failure. The fourth part is specifically aimed at the behavioural antecedents with a focus on escalation of commitment behaviour. The last part (part five) contains two figures (at the end of appendix B) and these figures initiate several questions about project failure. The figures are related to antecedents of project failure and project management as a whole.

This approach of semi-structured interviewing is a common method for studies that want the dept and flexibility of an unstructured interview, but also want to incorporate the structure of a fully structured interview (Myers, 2013). To interest the interviewees, a pre-designed list of statements was sent in advance of each interview. The (most important) results of these statements were discussed during the second part of the interview. This was done in order to have more structure during the interview and in order to generate a more divers conversation. This ensures that follow up questions can be asked based on the results of the statements. The interviewees were asked to rate these statements based on a 1-7 scale, from completely disagree to completely agree. The results of these statements were interpreted prior to the interview (included in appendix D). So, the prior attained knowledge was helpful in making the interviews and their results more informative.

3.5 Research ethics

The ethics of this research are based upon (Myers, 2013). These ethics are clearly communicated with the interviewees and other parties involved. The following ethics are activity pursued during this study:

1) Transparency, openness and thoroughly informing the participant. The interviewees and other parties involved were informed about all of the procedures and the results of the research. The participants were informed with general information about the interview and what was required in preparation before the interview. A confirmatory email was sent to all interviewees with additional

information about the interview. Before the interviews took place, the research goals were shared and the participants were informed that they have the freedom to withdrawn from the research at any time. At the start of each interview, the interviewees were informed about the procedures of the interview. In addition, part two and three of the research ethics were discussed with each individual interviewee during this introduction.

2) Consent about recording the interviews during the research. During the introduction of each interview the consent of each interviewee was asked towards recording the interview for a transcript. All of the interviewees were informed that the recording of the interview would only be used to transcribe the interview and that the recording will be deleted when the research is completed. If an interviewee did not grand their consent, alternative options of capturing the data would be considered. During this research, all participants gave their consent in recording the interviews.

3) Anonymity during the research. All interviewees had the opportunity to remain anonymous in the research. The anonymity of this research consists of two parts. The first part of the anonymity consists of the names of people and names of companies. The second part of the anonymity consists of specific project names and specific project information that could indicate which project it regards. All of the participants agreed and opted for complete anonymity. Therefore, all of the transcripts and results of the interview data are fully anonymous.

4) Honesty, listening, language and behaviour of the researcher. Lastly the ethics of the researcher will be discussed. Honesty of the researcher is required for the reliability of the research. Listening is an important aspect in order to threat the interviewees respectfully and to ensure a good validity whilst conducting the interviews (by asking follow-up questions based upon the listing abilities of the researcher). Finally good/decent language and behaviour of the researcher is vital in treating the interviewees professionally and with respect.

4. Results

In this chapter the results of the interviews will be discussed. The information in this chapter originates from the interview transcripts and the coding of the data. The Eisenhardt methods states two stages for data analysis, the analysis within case data and searching for cross-case patterns (Eisenhardt, 1989). This chapter consists of two parts. The first part contains the within-case analysis, where each individual case is described in detail. These cases are described in four sub paragraphs based upon the four sectors of this research. After all of the cases are described, the cross-case analysis follows. This analysis compares the cases based upon types of acquisition and the cases across all sectors. This was done in order to compare the arisen patterns and to show the distinction between the cases.

The results of this case study are displayed based upon relatively recent case studies regarding projects (thus a similar context) and how they illustrate results in their articles. The article of Correani, Massis, Frattini, Petruzzelli, & Natalicchio (2020) and Loch, Mähring, & Sommer (2017) was used for the comparative case study design format. The article of Wilson, Pelham, Connell, & Duffield (2016) was used for the general text structuring. In addition, the article of Pan, McNamara, Lee, Haleblian, & Devers (2018) was used because this study takes place in a different context than projects (communication of top managers), but it is a recent study from a high rated (strategic) management journal which showcases how results can be presented in a clear and concise manner.

4.1 Within-case analysis

The within-case analysis consists of a detailed description of each case. This description is provided for the reader to get familiar with the background of all cases as a stand-alone entity and to show the unique patterns of each case before they are generalized across cases (Eisenhardt, 1989). The cases are clustered per sector to organize them due to the high number of cases (16 cases across 4 sectors). The coding of the data formed a code tree consisting of the most important elements of project failure within this study (see appendix E). Based upon this code tree, three main elements and consequently main elements of this research came to light. The three main elements are:

1. antecedents of project failure (rational, behavioural and the combination of both).
2. effect of these antecedents and
3. escalation of commitment behaviour.

4.1.1 Within-case analysis - Construction

Sector	Case nr.	Respondent nr.	Perspective	Type of acquisition
Construction	Case 1	2	CRO	Open acquisition
Construction	Case 2	3	Project director	Open acquisition
Construction	Case 3	4	CEO	Current contact
Construction	Case 4	14	Director	Current contact

Table 3: Construction cases

Antecedents of project failure The CRO of case 1 describes various antecedents of project failure but predominantly rational antecedents. He states that the most important antecedent of project failure is related to an incorrect risk assessment *''For me, it starts at the very beginning that the risks of the client and the contractor are not properly distributed" (fragment 1: CRO, case 1).*

The second case of this study shows many behavioural and combinatorial antecedents but only two rational antecedents. The project director describes that underestimation due opportunism and cooperation between the client and the contractor are the biggest causes of project failure. *''So, underestimation due to opportunism and then what also occurs very often is collaboration between the client and contractor, which is also one of the biggest bottlenecks or causes of project failure'' (fragment 2: Project director, case 2).*

Case 3 of the construction sector shows many rational and combinatorial and only a few behavioural antecedents. The CEO of the third case illustrates that project failure takes place mostly in the front end of a project due to contract, timeliness of procurement, quality of information and quality of labour. *''It occurs predominantly in the front end of a project. This is very diverse, but it is in the contract formation, the timeliness of your procurement, quality of your information and quality of labour'' (fragment 3: CEO, case 3).*

The fourth and last case of the construction sector shows only one behavioural antecedent but multiple rational and combinatorial antecedents. The director of case 4 describes that for him project failure mostly occurs within three phases. The first phase is the technical phase, the second phase is the preparation phase and the last phase is the financial phase. *''Firstly, you see that in project failure the technical side, that it is not well elaborated, that it is not well thought through in advance. Preparation is very important and there is also a bit of underestimation there. What I also notice is financial, there can be pressure on that. If you acquire a project very sharply. Then everything just has to work'' (fragment 4: Director, case 4).*

For an oversight of all of the antecedents that were mentioned during the construction interviews, table 4 is included.

Cases/ antecedents	Case 1	Case 2	Case 3	Case 4
Rational antecedents	• Incorrect risk assessment, • Incorrect risk distribution, • A non divers project team, • Scope and requirements issues and • Governance related issues	• The shift of the design from the client to the contractor and • Design inefficiency.	• Working in a new segment, • Quality of the cooperation partner, • Timeliness of the procurement, • Contracting, • Design inefficiency, • Norms not up to par, • Low quality of the planning, • Complexity in general and • That complexity is not recognized in the contract	• Technical elaboration, • Complexity of the project, • Design inefficiency and • Too few competent/good construction builders available within the market
Behavioural antecedents	• Encompass fear of opposing a bad acquisition and • Always seeking something new with the acquisition of new projects	• Different interest of people, • Ignoring risks, • Opportunism/eagerness during the acquisition phase, • Underestimation due to opportunism and • Psychological aspects of humans	• A bad acquisition because of turnover eagerness and • Strained acquisition caused by previous project losses	• Missing strong leadership within a project
Combinational antecedents	• Bad acquisition in the initiation phase and • Financial pressure during the acquisition phase	• Different interpretation of contracts, • Cooperation between client and contractor, • Contract and communication with the client and • The cooperation within the project team	• Extra risk due to acquisition in times of crisis, • Entering a new segment in times of crisis, • Quality of information, • Quality of labour, • A flawed planning and monitoring and control	• Underestimation in the preparation, • Strained acquisition caused by financial pressure, • Incorrect architectural design, • Execution and effective site management and • Contract and communication

Table 4: Antecedents of project failure in the construction sector

Effects of the antecedents The CRO of case 1 describes that project failure can cause financial losses and it can initiate a bad or a symmetric risk profile of the project. Case 2 shows multiple effects of project failure. Within case 2, the project director exhibits that project failure can pressure the progress of a project, cause delays within the progress of a project and increase the chance of negative financial results (see fragment 5). The CEO of the third case describes that the effects of project failure include a worse equity of the company and less financial vigour. Case 4 shows a financial and a project effect. The director of case 4, explains that project failure can cause financial losses and disturbances in the progression of a project. *"Of course, the chance of a negative result increases. That puts pressure on the progress. Then you see that at some point the progress will also be at jeopardy'' (fragment 5: Project director, case 2).*

Escalation of commitment behaviour Case 1 illustrates causes, effects and measures to prevent escalation of commitment behaviour. The CRO of case 1 describes that this behaviour can be caused by continuing the current method because you cannot stop once you have started, technicians do not understand sunk cost and therefore they continue the current method and emotions restrain people in quitting (see fragment 6). He also states that the effect of this behaviour is that once this behaviour is present, it is very hard to adjust this later on in the project. The CRO lastly describes that that escalation of commitment behaviour cannot be prevented in the execution phase, but should already be prevented in the initiation phase. *"You know your ratio says you really have to stop and go back to the drawing board, your emotion says that no one dares to press that button'' (fragment 6: CRO, case 1).*

The project director of case 2 explains that escalation of commitment behaviour can be caused by insufficient agreements about the escalation model, less objectivity within a project team towards each other, being bounded by the contract and stubbornness of people (see fragment 7). He states that this behaviour can result in continuing with team members for too long when they should be replaced and it can lead to extra costs. The project director also describes that this behaviour can be prevented by making specific agreements before the project starts, initiating the conversation with people about it due to personal contracts, including an external party that is objective and courage to say no against a price that is too low/courage to quit a project when this is necessary. *"But we were so stubborn that we just kept going'' (fragment 7: Project director, case 2).*

The CEO of the third case portrays that escalation of commitment behaviour can result in extra pressure that can frustrate employees (see fragment 8) and due to this pressure people start doing tensive acts. This can be prevented according to the CEO of case 3 by not putting abnormal pressure on people, an elaborate analysis and learning from this analysis and threating the project leader peacefully from the position of the CEO. *"And then people get frustrated and in my experience that is not useful'' (fragment 8: CEO, case 3).*

Radboud Universiteit

The director of the last case of the construction sector, case 4, describes that escalation of commitment behaviour can be initiated when you do not recognise swiftly enough that the project is shifting the wrong way. This can lead to great financial losses (see fragment 9). The director of case 4 also presents that this behaviour can be prevented by adjusting immediately and having an open business structure where people can come together easily and talks about things. *"Look the client and the constructor said yes, you have to keep doing it that way and no it's going to be fine. And in the end that resulted in a highly negative project result and another claim for damages of more than 10 million or so'' (fragment 9: Director, case 4)*.

4.1.2 Within-case analysis - Shipping

Sector	Case nr.	Respondent nr.	Perspective	Type of acquisition
Shipping	Case 5	7	CEO	Open acquisition
Shipping	Case 6	9	COO	Open acquisition
Shipping	Case 7	6	CFO	Current contact
Shipping	Case 8	12	CFO	Current contact

Table 5: Shipping cases

Antecedents of project failure Case 5 only shows one rational and one behavioural antecedent. However, this case does show three combinatorial antecedents. The CEO of case 5 describes that communication is the prime cause of project failure. *"I actually think communication is the cause of project failure'' (fragment 10: CEO, case 5)*.

The COO of case 6 describes many antecedents of project failure within every category of antecedents. Even though he describes many antecedents, he states that the main cause of project failure is related to the composition of the project team. *"I think the composition of the team. Look at a good project leader, who sets up his project team well'' (fragment 11: COO, case 6)*.

Case 7 displays various antecedents of project failure. The CFO of case 7 states that the most important antecedent is planning, monitoring and control. *"I think it's just very important: the planning, monitoring and control'' (fragment 12: CFO, case 7)*.

The last case of the shipping sector, case 8 shows no behavioural antecedents but several rational as well as combinatorial antecedents. The CFO of case 8 describes two main causes of project failure, a flawed engineering and scope creep. *"Flawed engineering in the beginning, that's number one. Number two is change order management. You can actually summarize that as scope creep'' (fragment 13: CFO, case 8)*.

For an oversight of all of the antecedents that were mentioned during the shipping interviews, table 6 is included.

Radboud Universiteit

Cases/ antecedents	Case 5	Case 6	Case 7	Case 8
Rational antecedents	• Legal aspects	• Flawed engineering, • Caps on fines and liabilities, • Not strictly defining extra works, • Composition of the project team, • Not instating a contract manager and • Design inefficiency due to flawed engineering	• Quality of third parties, • Time pressure, • Legal differences between countries and • More demanding requirements from the client	• Flawed engineering, • Design inefficiency and • Scope and requirements
Behavioural antecedents	• Cultural differences across countries	• Lack of discipline and postponing agreements, • Cultural differences between countries and • Other interest of people involved	• Ego of top managers, • Culture between countries, • Prestige within the company and • Other interest of people who are involved	• None
Combinational antecedents	• General communication, • Internal communication and • Communication in combination with alignment	• Entering a new market, • Arrangements that are incorrectly defined, • Lack of involvement by the board of directors, • Language barriers in the communication, • Contract and communication with the customer and • Uncontrollable external factors	• The amount of orders, • Too many projects concurrently, • A bad tender procedure, • Communication and • Flawed planning, monitoring and control	• Incomplete design due to changes made by the customer, • Not completing the gate process well and • Scope creep

Table 6: Antecedents of project failure in the shipping sector

Effects of the antecedents Case 5 exhibits no effects of project failure. The COO of case 6 describes that project failure can cause big financial losses. He also describes that project failure can cause a temporal and sometimes even a complete termination of a project. The CFO of case 7 explains that additional work in a project can cause negative financial effects for the company. In addition, he explains that the effect of project failure only gets worse within a project when failure occurs. Case 8 displays multiple effects of the antecedents. The CFO of case 8 states that project failure can initiate negative financial effects, open ends within a project that need to be finished, inefficiencies during the project and that the employees within the execution phase are blamed for faults that were caused earlier in the project. *"In the project business, the pain always comes out in the execution phase. The people who have to do it with their hands, they get blamed because they work many more hours than budgeted. Which is very unfair because it is caused in the cycles before the execution phase'' (fragment 14: CFO, case 8).*

Escalation of commitment behaviour The CEO of the fifth case delineates that escalation of commitment behaviour can be caused due to placing the responsibility with the manager, a fear culture and fear of putting yourself on the line (see fragment 15). The effect of this behaviour is that this it is detected too late. The CEO of case 5 shows that escalation of commitment behaviour can be prevented by pointing the managers in a certain direction and coaching them. *"A while ago I experienced a manager putting himself on the line for a certain idea. We went in that direction and almost everyone saw that it was the wrong direction that we had chosen but because that manager put himself on the line to the board of directors, we just kept going'' (fragment 15: CEO, case 5).*

The COO of case 6 illustrates that escalation of commitment behaviour can be caused due to the fact that you cannot change methods instantly and the fear of communicating about problems (see fragment 16). The COO also illustrates that this behaviour can be prevented by behavioural training in dealing with mistakes, mutual trust, courage to intervene, a board of directors that is closely related to the business and not continuing the process while the current method is not working. *"That was always so difficult, they never wanted to tell us bad news. Because they were very afraid that we would get very angry'' (fragment 16: COO, case 6).*

In case 7 escalation of commitment behaviour was vey present. The CFO of case 7 describes that this behaviour can be caused by fear of communicating about problems, the thought that success comes after loss (losses of a project can be compensated at the end) and cultural differences between countries that result in a concealment of problems. The CFO of case 7 displays that the effects of this behaviour are that a bad project only gets worse and that it says under the radar for too long. To prevent this behaviour the CFO describes that mutual understanding/trust/respect (see fragment 17) and a low threshold to employees can prevent this behaviour. *"I think it's very important that the mutual trust is there'' (fragment 17: CFO, case 7).*

Radboud Universiteit

The CFO of the last shipping case, case 8, explains that escalation of commitment behaviour can be caused by the fact that choosing an alternative is more painful, continuing the current method is maintained due to current relationships within the business, personal interests and that someone has to worry less while continuing the current method (see fragment 18). According to the CFO this behaviour can be prevented by a good company culture. *''We choose the same method because it doesn't cause problems and we therefore have to worry less'' (fragment 18: CFO, case 8).*

4.1.3 Within-case analysis - Offshore

Sector	Case nr.	Respondent nr.	Perspective	Type of acquisition
Offshore	Case 9	5	CFO	Open acquisition
Offshore	Case 10	8	Project director	Open acquisition
Offshore	Case 11	15	Vice president projects	Current contact
Offshore	Case 12	16	Investment manager	Current contact

Table 7: Offshore cases

Antecedents of project failure The CFO of case 9 describes various causes of project failure. The CFO states that overestimating yourself and the elaboration of the scope are the most important antecedents of project failure. *''Overestimating yourself, that's an important one and that you spent too little time in the front end in elaboration your scope'' (fragment 19: CFO, case 9).*

Case 10 portrays one behavioural but multiple rational and combinatorial antecedents of project failure. The project director of case 10 explains that two causes are the main antecedents of projects failure, contract and communication with the client and execution and effective site management. *''Actually two, contract and communication with the client and execution and effective site management'' (fragment 20: Project director, case 10).*

The vice president of projects of case 11 describes that multiple antecedents of project failure are present. However, according to him, an unclear scope of work is the prime antecedent of project failure. *''I think there is a lack of clarity about the scope of work in the broadest sense, not just the technical scope'' (fragment 21: Vice president projects, case 11).*

The last case of the offshore sector, case 12, shows many antecedents of project failure. The investment manager of case 12 states that project failure in his opinion, mostly regards human aspects. Specifically, he states that underestimation of costs and opportunism are two important antecedents of project failure. *''It can be a hopeless underestimation of costs. And you just have a lot of opportunistic people who only see the upside and don't want to see the downside'' (fragment 22: investment manager, case 12).*

For an oversight of all of the antecedents that were mentioned during the offshore interviews, table 8 is included.

Cases/ antecedents	Case 9	Case 10	Case 11	Case 12
Rational antecedents	• Elaboration of the scope, • Low margins due to a mature market and • The complexity of a project	• Wrong assumptions due to previous working experience, • Legal aspects and • The composition of the project team	• Unclear scope of work, • Not the correct employees in the correct places, • A not sharply defined organization, • A bad project definition and • Scope and requirements	• No liquidity, • Market is adverse, • Financial aspects and • Legal aspects
Behavioural antecedents	• Appetite/eagerness in the acquisition of a project, • Overestimating yourself and • Different interpretations of the contract	• Seeing things too complicated	• Compliance, • Not willing to admit risk due to conflict avoidance (and confirmation bias) and • Misalignment due to high expectations of their superiors	• A bad acquisition due to high pressure or fear of losing money, • Misconception/underestimation of the real world, • Underestimation of costs, • Opportunism and • Overestimating yourself
Combinational antecedents	• The power position of the client, • The acceptance of extra work and • Scope and requirements	• Communication with an external party, • Project manager has a hard time reading the table, • Beginner's mistakes caused by the lack of experience of the project manager, • Bad risk assessment, • Wrong assessment in the tender team, • Uncontrollable external factors, • General assessment errors, • Contract and communication with the client and • Execution and effective site management	• Completing the tender procedure too fast, • Unclear agreements and • Capacity and capability issues	• Piling too many risks together, • Internal communication within a project team, • Communication with stakeholders, • Transparency and • A flawed planning, monitoring and control

Table 8: Antecedents of project failure in the Offshore sector

Radboud Universiteit

Effects of the antecedents The CFO of case 9 states that the effects of project failure include demotivated employees and financial losses (see fragment 23). The CFO also describes that a cause like scope and requirement can initiate other antecedents like design inefficiency. Therefore, it can occur that project failure due to scope and requirements can also be a cascading effect that initiates other antecedents. The project director of case 10 shows that financial losses and delays within the progress of a project are the main effects of project failure. The vice president of projects of case 11 exhibits that the effects of project failure consist of financial losses, overschedule, loss of project margin and double work loads. Lastly the investment manager of case 12 describes that the effects of project failure are financial losses and getting into a legal battle. *''Project failure can cause people to get demotivated sometimes and certainly if it is a really heavy and long project then it will certainly be a struggle to bring it to a good end. It is not just a financial picture, it does much more with the organization''* (fragment 23: CFO, case 9).

Escalation of commitment behaviour The CFO of case 9 shows that escalation of commitment behaviour can be caused by the fact that it is difficult to change the order of activities/apply a different method, protecting the company image and therefore maintaining the current method and forced by the customer to finish the product. *''If you have a difficult customer, it becomes even more difficult to adjust a bit. Then you are forced by the customer to finish things''* (fragment 24: CFO, case 9).

The project director of case 10 explains that escalation of commitment behaviour can be caused by not daring to intervene and that it is hard to take a step backwards (see fragment 25). According to the project director, this behaviour can be prevented by intervening once signals arise, replacing a project manager, a solution-oriented business culture and that there are company standards/reports in place to detect this behaviour. *''Sometimes they have taken a route and then they hope it will be okay. It is often difficult to take those steps backwards to be able to turn left or right again. What is also often a problem is that they see it, but do not dare to intervene concretely''* (fragment 25: project director, case 10).

Case 11 did not recognise much escalation of commitment behaviour. The vice president of projects only states that when this behaviour occurs that it is usually prevented by a four eyes principle which means that every decision/action within a project is taken with at least 2 people and therefore this behaviour can be prevented. *''Nothing is ever signed by 1 man, never, nothing at all. The smallest things are four eyes''* (fragment 26: Vice president of projects, case 11).

The investment manager of case 12, shows that escalation of commitment behaviour can be caused by hiding the problem (see fragment 12). He also shows that this behaviour can be prevented by a diverse project team, transparency and a constant dialogue. *''That is also caused by people trying to hide it and still trying to make something of it''* (fragment 27: Investment manager, case 12).

Radboud Universiteit

4.1.4 Within-case analysis - IT

Sector	Case nr.	Respondent nr.	Perspective	Type of acquisition
IT	Case 13	1	CEO	Open acquisition
IT	Case 14	11	CEO	Open acquisition
IT	Case 15	10	Industry director	Current contact
IT	Case 16	13	Partner	Current contact

Table 9: IT cases

Antecedents of project failure Case 13 shows a variety of antecedents of project failure. The CEO of case 13 states that an unclear governance is one of the most important antecedents of project failure. *''25% to 35% of project failure is caused due to an unclear governance, always''* *(fragment 28: CEO, case 13).*

The second case of the IT sector, case 14, shows multiple antecedents of project failure across the rational, behavioural and combinatorial antecedents. The CEO of case 14 describes that scope and requirements is the main antecedent of project failure. The CEO also states that following this antecedent, governance or planning, monitoring and control are the second most important antecedents of project failure. *''I think scope and requirements first. Then the governance or planning, monitoring and control''* *(fragment 29: CEO, case 14).*

Case 15 only shows one rational, no behavioural but many combinatorial antecedents of project failure. The industry director of case 15 states that several forms of communication are important, and that communication is the prime antecedent of project failure *''It is communication, still communication''* *(fragment 30: Industry director, case 15).*

The last case of this research, case 16, portrays various antecedents of project failure. The partner of case 16 describes that the most important antecedents of project failure are related to the users. Consequently, a flawed implementation due to not involving the users and resistance to change of the users are the most important antecedents. *''That you involve your users at the right times. But there's always 15% of users who get their heels in the sand and they just don't want to change''* *(fragment 31: Partner, case 16).*

For an oversight of all of the antecedents that were mentioned during the IT interviews, table 10 is included.

Radboud Universiteit

Cases/ antecedents	Case 13	Case 14	Case 15	Case 16
Rational antecedents	• Too many stakeholders involved and therefore an increase in complexity, • Governance in general, • Unclear governance, • Legal and • Compliance issues	• Knowing your client well, • Staying in control, • Governance related issues, • Scope and requirements and • The quality of the cooperation partner	• Governance related issues	• Optimizing a system without taking other systems into account and • Unclear scope and requirements
Behavioural antecedents	• The tension/stress when one employee tries to do everything	• Internal fraud of an employee, • Overestimation and • Other interest of people involved	• None	• Resistance to change and • Making errors on purpose
Combinational antecedents	• Communication and alignment, • Bad implementation caused by not involving customers, • Transitions and migrations and • Communication with stakeholders and customers	• Blindsided due to strict requirements, • Staying in control, • Not in tune project team, • Difference between a good calculation and a commercial calculation, • Uncontrollable external factors and • A flawed planning, monitoring and control	• Estimation errors/misjudgement errors, • General communication, • Internal communication, • Communication with stakeholders, • Underestimation of the implementation phase, • Work experience related failures, • Uncontrollable external factors, • A flawed planning, monitoring and control and • A bad acquisition due to low prices or unrealistic terms	• Flawed implementation by not involving the customer, • Uncontrollable external factors, • Communication with the customer and • Grip and control

Table 10: Antecedents of project failure in the IT sector

Effects of the antecedents Case 13 shows many effects of project failure. The CEO of case 13 describes that it can cause extra pressure, extra reports, extra responsibilities, extra risk management, extra orders and the financial effect of extra payments. The CEO of case 14 states that project failure causes financial losses, client deliberately not paying and withdrawing a team from a client because it was not working (see fragment 32). The industry director of case 15 illustrates that project failure mainly causes massive financial losses. The partner of case 16 exhibits that one of the main effects of project failure is the delay in the progress of a project. This can result in even more effects like continuous discussions and actions that are not executed. *''One time we had to withdraw a team that was working on a project at the client because it did not work for that client'' (fragment 32: CEO, case 14).*

Escalation of commitment behaviour The CEO of case 13 describes that when escalation of commitment behaviour occurs that people start working only based on instructions. The CEO states that this behaviour can be prevented by starting a conversation with the people. *''Focus on the human. Do not use project management tools or PowerPoint sheets but start the conversation. Guys what's going on, where is your concern? Tell us where is your concern, what should we do, remember we have a great interest in realizing this. Or what would you do if you were in my shoes because now I only hear why it doesn't work. So this is looking for dialogue'' (fragment 33: CEO, case 13).*

The CEO of case 14 explains that when escalation of commitment behaviour occurs, this can be prevented by monitoring, control and coaching when they intervene immediately if necessary. *''When we intervene quickly, we use coaching, if necessary'' (fragment 34: CEO, case 14).*

The industry director of case 15 displays that causes of escalation of commitment behaviour are incorrect ways of reporting, fear of telling problems (fragment 35), a fear culture and being bounded by the contract. According to the industry director, this behaviour causes negative financial results, extra work and delays in the progress of a project. The industry director also describes that this behaviour can be prevented by having a good governance (and therefore it will be less impactful), mutual trust and monitoring and control. *''People also just want to make a career and don't want to report problems. Unless they have a solution for it right away'' (fragment 35: Industry director, case 15).*

The partner of case 16 describes that when escalation of commitment behaviour occurs it can result in firing of a certain employee (most of the time there were already problems with this employee), employees making mistakes on purpose (see fragment 36) and replacing a team member. The partner of case 16 also describes that this behaviour can be prevented by standing your ground and keep explaining why it is necessary, communication and staying on top of it. *''Then they are consciously making mistakes and not doing it the right way'' (fragment 36: Partner, case 16).*

4.2 Cross-case analysis

The cross-case analysis consists of two parts. First the type of acquisition has been illustrated and this originates from the contrast that is described in paragraph 3.2. The contrast is the acquisition (of a project) based upon current contact versus acquisition (of a project) based upon open acquisition. After the type of acquisition is illustrated, the second part of the cross-case analysis will outline the analysis across all four sectors. This contrast sets out the differences and similarities across all sectors. These two contrasts (1. type of acquisition and 2. across four sectors) form the cross-case analysis of this research.

4.2.1 Cross-case analysis - type of acquisition

The cases are structured so that the first two cases of each sector contain the cases with the open acquisition and the last two cases of each sector contain the cases with the acquisition based on current contact. Case 1, 2, 5, 6, 9, 10, 13 and 14 are the cases with open acquisition and 3, 4, 7, 8, 11, 12, 15, 16 are the cases with acquisition based on current contact. The analysis of this contrast displays no differences between the two perspectives. This contrast has been analysed via the statistics of ATLAS ti and the findings as described in paragraph 4.1. Both show that all the findings of the antecedents, effect and escalation of commitment behaviour are only present in a single case or underlying patterns are present across most cases in all of the sectors. This analysis did not show underlying patterns across the cases of the open acquisition compared to the cases of the acquisition based on current contacts and vice versa.

The results of the overall analysis did show that an unsound acquisition of a project is one of the six main combinatorial (between rational and behavioural) antecedents of this research. This shows that a flawed acquisition, a too strict or a less critical acquisition can cause project failure. Therefore, acquisition of a project is an important result of this research, however this is shown in a different context. It came to light as a result of the antecedents of project failure in the combinatorial category, but it did present a new insight as a pattern based on the types of acquisition of the cases.

4.2.2 Cross-case analysis - across all sectors

When comparing the results across all sectors, similarities and differences arose. These results are also based on the transcripts of the interviews, coding and analysis of both. This sub-paragraph is described in the same way as paragraph 4.1, in order to keep the same format during this chapter.

Antecedents of project failure Regarding the antecedents of project failure the code tree of appendix E (and consequently the statistics of ATLAS ti) and table 4, 6, 8 and 10 (which are all based

upon information of appendix F and consequently the interview transcripts) illustrate the similarities and the overall most common antecedents of project failure. When analysing all of the cases, only the antecedents were selected that occurred three or more times across all cases. This in order to narrow down more then 100 different antecedents across all cases. An antecedent cannot be regarded as reoccurring when it occurred once in all the interviews. Therefore, all the antecedents are analysed based upon how many times they occurred and if this was present across the sectors or only in one sector. This analysis was performed in ATLAS ti and the code three in appendix E is the result of this analysis.

This analysis shows that on the rational side six antecedents were reoccurring: complexity of the project, governance issues, legal issues, quality of the cooperation partner, scope and requirements and lastly the composition of the project team. On the behavioural side there were three antecedents that were commonly reoccurring: overestimation of your own organisation (the case organization), other interests of people involved and cultural differences per country. The analysis of the combination of rational and behavioural antecedents shows that communication, contract and communication with the customer, a flawed planning, monitoring and control, unsound acquisition, uncontrollable external factors and design inefficiency occurred frequently across all sectors and are therefore the main combinatorial antecedents of project failure. For a clear overview, table 11 is included.

Rational antecedents	Behavioural antecedents	Combinational antecedents
- Complexity of the project, - Governance issues, - Legal issues, - Quality of the cooperation partner, - Scope and requirements and - The composition of the project team	- Overestimation of your own organisation (the case organization), - Other interests of people involved and - Cultural differences per country	- Communication, - Contract and communication with the customer, - A flawed planning, monitoring and control, - Unsound acquisition, - Uncontrollable external factors and - Design inefficiency

Table 11: Cross-sector results

The statistics of the interviews codes in ATLAS ti show a clear distinction between the sectors regarding the antecedents of project failure. The construction, shipping and offshore sectors all had 17- 20 codes regarding rational antecedents, 10-13 codes regarding behavioural antecedents and 18-19 codes regarding the combination between rational and behavioural antecedents. The IT sector only had 12 codes regarding rational antecedents, 5 codes regarding behavioural antecedents but 32 codes regarding the combination between both. This distinction is presented in table 12.

Sector/ Antecedent	Construction	Shipping	Offshore	IT
Rational	22	18	17	12
Behavioural	10	13	12	5
Combinatorial	18	19	19	32
Total	50	50	48	49

Table 12: Differences between sectors based on number of codes, ATLAS ti statistics

A more in dept analysis of this occurrence shows that in each IT case only one or two behavioural antecedents were present and in one case even no behavioural antecedents were present (excluding escalation of commitment behaviour). The IT sector was therefore very different regarding the rational but mainly behavioural antecedents compared to the other sectors. This can be related to the fact that all of the interviewees in the IT sector portrayed an image that this sector has different dynamics than the other sectors. The IT interviews were the only interviews that showed that agile working (being very flexible), short cycle thinking and having completely different workflows/structures regarding projects are differences compared to the construction, shipping and offshore sectors. This could explain this occurrence, but this research does not focus on these aspects and therefore more research is needed on this topic to understand this occurrence.

Effects of the antecedents The data comparison across all sectors shows that there are three main categories of effects of project failure: financial effects (e.g., financial losses), project effects (e.g., delays in the progress) and organizational effects (e.g., demotivated people). The only effect that almost all cases show, is the main effect of financial losses. Differences regarding the effects of the antecedents were better visible on a detailed level. In addition to the financial losses most cases described different additional effects like the examples that are shown above. But there was no underlying pattern when these additional effects occurred because they occurred only a few times randomly across the cases.

Escalation of commitment behaviour The analysis of the escalation of commitment behaviour shows three reoccurring themes within this behaviour across all sectors. It shows that this behaviour has several different causes, it has various different effects and that there are multiple ways of preventing this behaviour. The most common causes were fear, culture and that it was hard to change the current method when following a certain path. There were several other causes but those causes only occurred in one single case. The effects of escalation of commitment behaviour were almost identical to the effects of all the antecedents. Financial losses, frustrated people and delays within the progress were effects that occurred when escalation of commitment behaviour was present. But also other behavioural effects were present on a single occasion were people started

working only by procedures and that people made deliberate mistakes. But these effects did not occur frequently and therefore cannot be seen as an underlying pattern. Lastly when analysing the data regarding how to prevent escalation of commitment behaviour, mutual trusts appeared across most cases in all sectors. Several other methods like communication, transparency or business culture related aspects did also occur. However, these methods were not present in most cases across the sectors. Consequently, they cannot be seen as underlying patterns across the cases.

Radboud Universiteit

5. Conclusion and discussion

Chapter five is the last chapter of this master thesis. This chapter contains the conclusion, methodological as well as the theoretical limitations of this research. Following up the limitations, the theoretical and practical implications of this study are described. Lastly the directions of future research are described in the last paragraph of this master thesis.

5.1 Conclusion

The results of this research exhibit findings regarding the antecedents of project failure, effects of project failure and escalation of commitment behaviour. These are also the main subjects within this study. The sub questions and consequently the central question of this research regard these three subjects. Therefore, this conclusion is based upon these three subjects. The first part of the conclusion is based upon the antecedents of project failure and the respective sub question:

1. *What are the antecedents (rational and behavioural) of project failure in project organizations?*

The findings show that the rational side includes six main antecedents and specifically: the complexity of the project, governance issues, legal issues, quality of the cooperation partner, scope and requirements and lastly the composition of the project team. The behavioural side shows three main antecedents: overestimation of the organization (organization of the cases), other interest of people involved and cultural differences per country. The combination of rational and behavioural antecedent shows five main antecedents: communication, contract and communication with the customer, flawed planning, monitoring and control, unsound acquisition, uncontrollable external factors and design inefficiency. The antecedents above are the main antecedents across the sectors and most of the cases. They are therefore the antecedents of project failure in project organizations within this research. A full overview of all of the antecedents of project failure has been described in detail in paragraph 4.1. The second main subject regards the effect of project failure and consequently the second sub question of this research:

2. *How do antecedents of project failure effect the project results?*

The results of this study show that the antecedents of project failure primarily effect the project results (in the context of financial results), in a negative way. Almost all of the cases show that there is a negative relationship (based upon financial effects) between project failure and the project results. One other mentionable effect was the delay within the progress of a project. However, this effect was not present across most of the cases and all sectors, but it did occur

multiple times. This effect also had a negative relationship towards the project results. So, project failure caused delays in the progress of a project which consequently effects the project results negatively. The last main subject of this study regards escalation of commitment behaviour. The last sub question, question three, is solely based upon this subject.

3. What is the role of escalation of commitment as a prime behavioural antecedent on the project results in project organizations?

The results of this research show that escalation of commitment can be caused in different ways (e.g., fear, culture and that it was hard to change the current method when following a certain path). The main effects of this behaviour were very similar to the antecedents of project failure. Specifically, that it mainly causes a negative financial effect towards the project results. The results show that this effect can be prevented by mutual trust and several other ways that were less present across all cases. These three aspects of escalation of commitment behaviour (causes, effects and prevention methods/ways) show how escalation of commitment plays a role in project failure and towards the project results in project organizations. Escalation of commitment behaviour was very present in the findings and therefore is regarded as one of the main antecedents of project failure (besides the three behavioural antecedents that were already mentioned in sub question 1). However, most of the cases did not indicate escalation of commitment behaviour as the prime antecedent of the behavioural side. Nevertheless, it can be concluded that escalation of commitment is one of the most important behavioural antecedents and consequently effects the project results in a negative way when it occurs. These three sub questions form the combined answer to the central questions in this research. The central question of this research is:

- What are rational and behavioural antecedents of project failure and how do these antecedents effect the project results in project organizations?

The answer to the central question is stated above in the conclusions per sub questions. Recapitulatory, the six main rational antecedents, four main behavioural antecedents (including escalation of commitment behaviour) and five main combinatorial antecedents (combination of rational and behavioural antecedents) are the main antecedents of project failure within project organizations in this research. Consequently, these antecedents effect the project results (from a financial perspective) in a negative way within project organizations.

5.2 Limitations

Multiple limitations (methodological as well as theoretical) arose within this research.

Methodological limitation 1. The first two methodological limitations occurred due to the number of sectors that have been researched. Four sectors have been researched and for the Eisenhardt method polar opposites were required. The first limitation being that the amount of sectors limits the amount of companies that can be polar opposites. Idealistically more interviews per sector and therefore more companies per sector are preferred. If this would be taken into account, the number of interviews would increase which would not be feasible in the time period of this thesis.

Methodological limitation 2. The second limitation also arose from the number of sectors in this research. Due to the number of sectors and the polar opposites of the cases, only one perspective per case could be interviewed. Otherwise, the amount of interviews would increase from 16 to 32. 32 interviews would not be feasible to conduct, fully transcribe and code all of those interviews within the given time period. It would take more than 160 hours of transcribing (a full working month) all of these interviews and this would cause problems in the thesis planning due to insufficient time. Therefore, only one perspective per company has been interviewed in this research.

Methodological limitation 3. The third and last methodological limitation regards the coding of the interview transcripts. Based upon current qualitative research methodology and recent academic literature the method of inductive coding was selected. Whilst coding the interviewees the researcher identified many reoccurring patterns in an early stage of the coding. This was in hindsight linked to the research protocol and that this protocol had three main subjects: antecedents of project failure, effects of those antecedents and escalation of commitment behaviour. Due to this structure of the protocol most of the interviews were conducted in the same way and the same subjects were discussed. Therefore, the results of the interviews and codes were in line with the three main subjects as stated above. During the coding process the researcher saw these patterns and coded the interviews based upon these subjects because they were the reoccurring topics of the interviews. Consequently, the coding was not solely inductive coding but also contained parts of a deductive way of coding. In addition, the researcher could have been biased during the coding because this was partly executed based on subjects that were already existing/commonly reoccurring throughout the whole research.

Theoretical limitation 1. The first theoretical limitation in this research is the focus on only one specific behavioural component. This originates from the research scope/design to limit the broadness and ensure the research feasibility in the short time period. By only focussing on one specific behavioural component (escalation of commitment), various other behavioural components

were not researched specifically in this study. This is therefore a theoretical limitation because this study does not research all behavioural antecedents. However, with this limitation the opportunity emerges for future studies to research project failure with a focus on other specific behavioural antecedents.

Theoretical limitation 2. The second theoretical limitation arose with the selection of the academic literature. This selection was done based upon certain criteria (relevance, recentness, top 50 management journals, high rated journal/JIF score and the rating of the authors/H index score) that have already been described in paragraph 3.1. When searching for articles regarding the antecedents of project failure in the four sectors, there were no articles present from the top 50 management journals or other high rated journals. Accordingly, all of these articles (for instance all the articles in table 1) were selected based upon relevance, recentness and the ratings of the authors. This is a limitation regarding the journals because in an ideal situation all of the articles would originate from a high rated journal and this is not the case for the articles regarding antecedents of project failure in the construction, shipping, offshore and IT sectors.

5.3 Implications

There are theoretical as well as managerial implications. The theoretical implications outline what this research contributes/implicates to the field of project failure (specifically antecedents of project failure), escalation of commitment and behavioural strategy.

Theoretical implication 1. Project failure literature originates from (Pinto & Mantel, 1990) to modern day literature as shown in table 1 in paragraph 2.1. Theoretical implications regarding antecedents of project failure, contribute to the general knowledge of this subject and to further our current understanding about this subject. The theoretical implication regarding the antecedents of project failure is the finding of the six rational, four behavioural and five combinatorial antecedents of project failure. These antecedents were present across four different sectors and reoccurring across all of the cases. Therefore, these antecedents contribute to the list of antecedents that is known in the current literature of the construction, shipping, offshore and IT sectors. Compared to the current literature regarding antecedents of project failure in the four sectors, these antecedents have already been outlined by previous research. However, this is an addition to the current literature due to the fact that there is no existing literature with a comparison (and these findings) across the four sectors.

Theoretical implication 2. A second theoretical implication relates to the escalation of commitment theory. This study furthers our knowledge regarding escalation of commitment causes, effects and prevention methods. Consequently, it contributes to the original literature about

escalation of commitment (Staw, 1976) and modern-day literature (Lee, Kei, & Wong, 2020). It exhibits that the escalation of commitment is one of the most important behavioural antecedents (one of four) within this study and that is a very reoccurring antecedent of project failure. However, it does not show that escalation of commitment behaviour is the prime behavioural antecedents of project failure. Therefore, it contributes to the general knowledge of escalation of commitment related to project failure. Is also implicates the role of escalation of commitment behaviour as one of the most important antecedents of project failure. Compared to the current literature of the escalation of commitment theory/behaviour, the findings of this research add insight into (causes, effects and prevention methods) in a project failure setting. Only a few studies exist that focus on the relationship between escalation of commitment and project failure. Therefore, this study adds to the field of escalation of commitment behaviour with these insights.

Theoretical implication 3. The third and last theoretical implication regards the behavioural strategy. The literature of behavioural strategy is mainly based upon the article of Powell, Lovallo, & Fox (2011). The primary aim of this thesis was to contribute to the behavioural strategy by furthering our knowledge on this subject. Based upon the findings of the four behavioural antecedents of project failure and the more in dept insight regarding the escalation of commitment theory, the behavioural strategy knowledge (regarding project failure) has been advanced. The implications on this subject show that escalation of commitment is an important antecedent of project failure, but it is not the prime behavioural antecedent. Furthermore, our understanding of the four main behavioural antecedents of project failure implicates the relationship between behavioural strategy and project failure. Summarizing, the results of this study show that behaviour of humans is a large part of the antecedents of project failure across four sectors. Therefore, human behaviour can cause project failure and has an overall effect on the project result. Compared to current literature regarding behavioural strategy, this study does add new insights to this field. These additions are, as stated above, about the behavioural antecedents and a more in dept view of escalation of commitment in relationship to project failure.

Managerial implication 1. The first managerial implication is linked to the managerial contribution as described in the introduction of this research: how to better anticipate, more accurately and timelier predict project failure based on these antecedents. The insights of this study can help management and employees (within the four sectors) to timelier and better anticipate project failure. When these organizations are more cautious of these antecedents, they can timelier predict them (in the practise/the field) and therefore better and more accurately anticipate on them to prevent project failure. These antecedents can consequently be used as guidelines for organizations to prevent project failure.

Radboud Universiteit

Managerial implication 2. The second managerial implication is linked to the insight of the effects of project failure. This study shows that project failure negatively effects the project results (financially) and can also cause delays within the progress of a project. Organizations can use this knowledge to cope better with these effects. For instance, companies can terminate a project earlier because their knowledge regarding the effects of project failure is more complete and companies can therefore make better decisions (cost and benefits calculation of a project). Or they can cope better with project failure by already taking appropriate measures (e.g., already taking the financial losses into account) and therefore not be completely blindsided by the effects of project failure when a project is delivered.

Managerial implication 3. The last managerial implication regards escalation of commitment behaviour. Even though this behaviour was not the prime antecedent of project failure, it was however one of the four main behavioural antecedents that this study presented. Because this study did focus on escalation of commitment behaviour, results came to light regarding how this behaviour is caused, how it effects the project results and how it can be prevented. This is the only antecedent that has been researched with this much detail within this study. Therefore, it implicates for organizations (managers and employees) that they can use this insight into this behaviour to timelier detect this and to prevent this from happening. Consequently, it can also prevent a part of the organizations project failures.

5.4 Directions for future research

As stated in paragraph 2.2, this study only focusses on one behavioural lens (escalation of commitment behaviour). Therefore, many possibilities for future research arise to research the context of project failure with a focus on other behavioural aspects. This to ultimately contribute to the gap of the current aims and boundaries of behavioural strategy. Results of this study show that behavioural aspects like business and project team culture, overestimation (of your own company) and lastly other interests of those involved are all present in project failure. Especially culture and how people behave in a project setting was very evident from the findings of this study. It would therefore be very interesting to research in the future what various types of business cultures influence project failure in what way.

Future research would also be very interesting in a different setting. The current interview cases of this research are all relative large-scale companies with high revenues. Hence, it would be very interesting to research project failure and behavioural aspects in smaller companies and start ups. This research shows that generally speaking, based on the 16 companies from this research, that large companies are structured very different than smaller companies. With smaller companies the

amount of employees and departments of a company available for a project would be completely different. Hence, it would be very interesting to research project failure in smaller companies to see how organization structures play a role in project failure.

Lastly, directions for future research emerge from the focus on one behavioural antecedent in this research. Because this research focusses on one behavioural aspect and specifically escalation of commitment, the rational aspects are not the focal point in this study. This research shows that a variety of rational antecedents are very reoccurring in failing projects. However, this research does not focus on one single rational aspect. Consequently, future research with a focus on one or multiple rational antecedents would be very useful to further our knowledge on rational antecedents of project failure.

References

Arend, R. J., Zhao, L., Song, M., & Im, S. (2017). Strategic planning as a complex and enabling managerial tool. *Strategic Management Journal, 38 (8)*, 1741-1752.

Arkes, H., & Blumer, C. (1985). The psychology of sunk costs. *Organizational Behavior and Human Decision, 35 (1)*, 124-140.

Aronson, E. (2018). *The Social Animal.* New York: Worth Publishers.

Beaufort Corporate Consulting. (2020, Februari 24). Internal groupthink session. Utrecht, The Netherlands.

Boeije, H. (2005). *Analyseren in kwalitatief onderzoek: denken en doen.* Amsterdam: Boom onderwijs.

Bowen, M. G. (1987). The escalation phenomenon reconsidered: Decision dilemmas or decision errors? *Academy of Management Review, 12 (1)*, 52-66.

Bragger, J. D., Bragger, D., Hantula, D. A., & Kirnan, J. (1998). Hysteresis and uncertainty: The effect of uncertainty on delays to exit decisions. *Organizational Behavior and Human Decision Processes, 74 (3)*, 229-253.

Bragger, J. D., Hantula, B. D., A., D., Kirnan, J., & Kutcher, E. (2003). When success breeds failure: History, hysteresis, and delayed exit decisions. *Journal of Applied Psychology, 88 (1)*, 6-14.

Bresnen, M., Goussevskaia, A., & Swan, J. (2004). Embedding New Management Knowledge in Project-Based Organizations. *Organizations studies, 25*, 1535-1555.

Brews, P. J., & Hunt, M. R. (1999). Learning to plan and planning to learn: resolving the planning school/learning school debate. *Strategic Management Journal, 20 (10)*, 889-913.

Brockner, J. (1992). The escaltion of commitment to a failing course of action: toward theoretical progress. *Academy of Management Review, 17 (1)*, 39-61.

Brockner, J., & Rubin, J. Z. (1985). *Entrapment in Escalating Conflicts: A Social Psychologica Analysis.* New York: Springer Veriag.

Brockner, J., Houser, R., Birnbaum, G., Lloyd, K., Deitcher, J., Nathanson, S., & Rubin, J. Z. (1986). Escalation of Commitment to an Ineffective Course of Action: The Effect of Feedback Having Negative Implications for Self-Identity. *Administrative Science Quarterly, 31 (1)*, 109-126.

Choi, S., & Miller, K. D. (2020). Ongoing customization in project-based organizations. *Industrial and Corporate Change*, 1-14.

Correani, A., Massis, A. D., Frattini, F., Petruzzelli, A. M., & Natalicchio, A. (2020). Implementing a Digital Strategy: Learning from te Experience of Three Digital Transformation Projects. *California Management Review, 62 (4)*, 37-56.

Damoah, I. S., & Kumi, D. K. (2018). Causes of government construction project failure in an emerging economy. *International Journal of Managing Projects in Business, 11 (3)*, 558-582.

Denis, J.-L., Dompierre, G., & Ann Langley, L. R. (2011). Escalating Indecision: Between Reification and Strategic Ambiguity. *Organization Science, 22 (1)*, 225–244.

Denzin, N., & Lincoln, Y. (2000). *Handbook of qualitative research (2nd edition).* Thousands Oaks: Sage.

Radboud Universiteit

Doloi, H. (2013). Cost Overruns and Failure in Project Management: Understanding the Roles of Key Stakeholders in Construction Projects. *Journal of constuction engineering and management, 139 (3)*, 267-279.

Durand, R., Grant, R. M., & Madsen, T. L. (2017). The expanding domain of strategic management research and the quest for integration. *Strategic Management Journal, 38 (1)*, 4-16.

Ebneyamini, S., Reza, M., & Moghadam, S. (2018). Toward Developing a Framework for Conducting Case Study Research. *International Journal of Qualitative Methods, 17*, 1-11.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review, 14 (4)*, 532-550.

Eisenhardt, K. M. (2021). What is the Eisenhard Method, really? *Strategic Organization, 19*, 147-160.

Ellinas, C., Allan, N., Durugbo, C., & Johansson, A. (2015). How Robust Is Your Project? From Local Failures to Global Catastrophes: A Complex Networks Approach to Project Systemic Risk. *PLoS One*, 1-21.

Festinger, L. (1957). *A theory of cognitive dissonance.* Evanston, Illinois: Row, Peterson.

Foss, N. J. (2020). Behavioral Strategy and the COVID-19 Disruptions. *Journal of Management, 46 (8)*, 1322–1329.

Garland, H. (1990). Throwing Good Money After Bad: The Effect of Sunk Costs on the Decision to Escalate Commitment to an Ongoing Project. *Journal of Applied Psychology, 75 (6)*, 728-731.

Gavetti, G. (2012). Toward a Behavioral Theory of Strategy. *Organization Science, 23 (1)*, 267-285.

Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding Theory–Method Fit: A Comparison of Three Qualitative Approaches to Theory Building. *Journal of Management Inquiry, 27*, 284-300.

George, A., & Bennett, A. (2004). *Case studies and theory development in the Social Sciences.* Cambridge: MIT Press.

Guoa, N., Guo, P., Dong, H., Zhao, J., & Han, Q. (2019). Modeling and analysis of cascading failures in projects: A complex network. *Computers & Industrial Engineering 127*, 1-7.

Haji-kazemi, S., Arica, E., Semini, M., Alfnes, E., & Andersen, B. (2015). Detecting Early Warning Signs of Delays. *IFIP International Federation for Information Processing*, 215–222.

Hanelt, A., Bohnsack, R., Marz, D., & Marante, C. A. (2020). A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal of Management Studies*, 1-39.

Hobday, M. (2000). The project-based organization: An ideal form for managing complex products and systems? *Research Policy, 29*, 871-893.

Hopmere, M., Crawford, L., & Harré, M. S. (2020). Proactively Monitoring Large Project Portfolios. *Project Management Journal, 51*, 656-669.

Hughes, D. L., Rana, N. P., & Simintiras, A. C. (2017). The changing landscape of IS project failure: an examination of the key factors. *Journal of Enterprise Information Management, 30 (1)*, 142-165.

Radboud Universiteit

Jabareen, Y. (2009). Building a Conceptual Framework: Philosophy, Definitions, and Procedure. *International Journal of Qualitative Methods, 8 (4)*, 49-62.

Jani, A. (2010). Escalation of commitment in troubled IT projects: Influence of project risk factors and self-efficacy on the perception of risk and the commitment to a failing project. *International Journal of Project Management, 29 (7)*, 934-945.

Kappelman, L. A., McKeeman, R., & Zhang, L. (2006). Early warning sings of IT project failure: the dominent dozen. *Information Systems Management*, 31-36.

Keil, M., & Mähring, M. (2010). Is your project turning into a black hole? *California Management Review, 53 (1)*, 6–31.

Keil, M., Tan, B. C., Wei, K.-K., Saarinen, T., Tuunainen, V., & Wassenaar, A. (2000). A Cross-Cultural Study on Escalation of Commitment behavior in Software Project. *MIS Quarterly, 24 (2)*, 299-325.

Kim, S. (2021). Frame Restructuration: The Making of an Alternative Business Incubator amid Detroit's Crisis. *Administrative Science Quarterly*, 1-53.

Lauesen, S. (2020). IT Project Failures, Causes and Cures. *IEEE Access*, 1-9.

Lee, J. S., Kei, M., & Wong, K. F. (2020). When a growth mindset can backfire and cause escalation of commitment to a troubled information technology project. *Information Systems Journal, 31 (1)*, 7-32.

Lehtinen, T. O., Mäntylä, M. V., Vanhanen, J., Itkonen, J., & Lassenius, C. (2014). Perceived causes of software project failures – An analysis of their relationships. *Information and Software Technology, 56 (6)*, 623-643.

Loch, C., Mähring, M., & Sommer, S. (2017). Supervising Project You Don't (Fully) Understand: Lessons For Effective Project Governance By Steering Committees. *California Management Review, 59 (2)*, 45-67.

Marshall, C., & Rossman, G. (2014). *Designing qualitative research.* Thousand oaks: Sage Publications.

Maxwell, J. A. (2005). *Conceptual framework: What do you think is going on? Qualitative research design: An interactive approach.* Thousand Oaks: Sage.

McNamara, G., Moon, H., & Bromiley, P. (2002). Banking on Commitment: Intended and unintended consequences of an organization's attempt to attentuate escalation of commitment. *Academy of Management Journal, 45 (2)*, 443-452.

Mills, A. (1974). *A system of logic: Ratiocinative and inductive.* Buffalo: University of Toronto Press.

Mintzberg, H. (2009). *Managing.* Oakland: Berrett-Koehler.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (2008). *Strategy Safari: Your complete guide through the wilds of strategic management.* Colorado: Pearson .

Moon, H., & Conlon, D. E. (2002). From acclaim to blame: Evidence of a person sensitivity decision bias. *Journal of Applied Psychology, 87 (1)*, 33-42.

Morse, J. M., Stern, P. N., Corbin, J. M., Bowers, B., Clarke, A. E., & Charmaz, K. (2009). *Developing grounded theory: The second generation.* Walnut Creek: Left Coast Press.

Musawir, A. u., Serra, C. E., Zwikael, O., & Ali, I. (2017). Project governance, benefit management, and project success: Towards a framework for supporting organizational strategy implementation. *International Journal of Project Management*, 1658-1672.

Myers, M. D. (2013). *Qualitative Research in Business & Management.* Thousand Oaks : Sage.

Nitithamyong, P., & Skibniewski, M. J. (2006). Success/Failure Factors and Performance Measures of Web-Based Construction Project Management Systems: Professionals' Viewpoint. *Journal of construction engineering and management, 132 (1)*, 80-87.

Northcraft, G. B., & Neale, M. A. (1986). Opportunity costs and the framing of resource-allocation decisions. *Organizational Behavior and Human Decision Processes, 37 (3)*, 348-356.

Northcraft, G. B., & Wolf, G. (1984). "Dollars, sense, and sunkcosts: A life-cycle model of resource allocation decisions". *Academy of Management Review, 9 (2)*, 225-234.

Pan, L., McNamara, G., Lee, J. J., Haleblian, J. (., & Devers, C. E. (2018). Give it to us straight (most of the time): Top managers' use of concrete language and its effect on investor reactions. *Strategic Management Journal, 39 (8)*, 2204-2225.

Papke-Shields, K. E., & Boyer-Wright, K. M. (2016). Strategic planning characteristics applied to project management. *International Journal of Project Management, 35 (2)*, 169-179.

Papke-Shields, K. E., & Boyer-Wright, K. M. (2017). Strategic planning characteristics applied to project management. *International Journal of Project Management, 35 (2)*, 169-179.

Pascale, R. (1999). Surfing the edge of chaos. *Sloan Management Review*, 83-94.

Pettigrew, A. (1988). Longitudinal field research on change: Theory and practic. *Paper presented at the National Science Foundation Conference on Longitudinal Research Methods in Organizations.* Austin.

Philip, T., & Schwabe, G. (2018). Understanding early warning signs of failure in offshore-outsourced software projects at team level. *Journal of Global Operations and Strategic Sourcing, 11 (3)*, 337-356.

Pinto, J. K., & Slevin, D. P. (1988). Project Success: Definitions and Measurement Techniques. *Project Management Journal, 19*, 67-72.

Pinto, J., & Mantel, S. (1990). The Causes of Project Failure. *IEEE Transctions of Engineering Management, 37 (4)*, 1-8.

Powell, T., Lovallo, D., & Fox, C. (2011). Behavioral Strategy. *Strategic Management Journal, 32*, 1369-1386.

Project Management Institute. (2016). *Pulse of profession - The high costs of low performance, How will you improve business results?* Philadelphia: Project Management Institute.

Project Management Institute. (2017). *Pulse of profession - Success Rates Rise, Transforming the high cost of low performance.* Philadelphia: Project Management Institute.

Sandberg, J., & Alvesson, M. (2011). Ways of constructing research questions: Gap-spotting or problematization? *Organization, 18*, 23-44.

Sauer, C. (1993). *Why information systems fail: a case study approach, information systems series.* Henley-on-Thames: Alfred Waller.

Radboud Universiteit

Schaubroeck, J., & Davis, E. (1994). Prospect theory predictions when escalation is not the only chance to recover sunk costs. *Organizational Behavior and Human Decision Processes, 57 (1)*, 59-82.

Schulz-Hardt, S., Thurow-Kröning, B., & Frey, D. (2009). Preference-based escalation: A new interpretation for the responsibility effect in escalating commitment and entrapment. *Organizational Behavior and Human Decision Processes, 108 (2)*, 175-186.

Shahhosseinia, V., Afshar, M., & Amiri, O. (2016). The root causes of construction project failure. *Scientia Iranica, 25 (1)*, 93-108.

Shepherd, D. A., & Cardon, M. S. (2009). Negative Emotional Reactions to Project Failure and the Self-Compassion to Learn from the Experience. *Journal of Management Studies 46 (6)*, 1-27.

Shepherd, D. A., Patzelt, H., Williams, T. A., & Warnecke, D. (2014). How Does Project Termination Impact Project Team Members? Rapid Termination, 'Creeping Death', and Learning from Failure. *Journal of Management Studies* , 1-34.

Shepherd, D., Patzelt, H., & Wolfe, M. (2011). Moving forward from project failure: negative emotions, affective commiment, and learning from the expierence. *Academy of Management Journal 54 (6)*, 1229-1259.

Sibony, O., Dan, L., & Powell, T. C. (2017). Behavioral Strategy and the Strategic Decision Architecture of the Firm. *California Management Review, 59 (3)*, 5-21.

Sleesman, D., Conlon, D., McNamara, G., & Miles, J. (2012). Cleaning up the big muddy: a meta-analytic review. *Academy of Management Journal, 55 (3)*, 541-562.

Staw, B. M. (1976). Knee-Deep in the Big Muddy: A study of Escalating Commitment to a Chosen Course of Action. *Organizational Behavior and Human Performance, 16 (1)*, 27-44.

Staw, B. M. (1981). The Escalation of Commitment To a Course of Action. *Academy of Management Review, 6 (4)*, 577-587.

Staw, B. M. (1981). The Escalation of Commitment To a Course of Action. *Academy of Management Review*, 577-587.

Stingl, V., & Geraldi, J. (2017). Errors, lies and misunderstandings: Systematic review on behavioural decision making in projects. *International Journal of Project Management, 35 (2)*, 121-135.

Symon, G., & Cassel, C. (2012). *Qualitative organizational research: core methods and current challenges.* London: Sage publications.

Szatmari, B., Deichmann, D., Ende, J. v., & King, B. G. (2020). Great Successes and Great Failures: The Impact of Project Leader Status on Project Performance and Performance Extremeness. *Journal of Management Studies*, 1-27.

Teger, A. I. (1980). *Too Much Invested to Quit.* New York: Pergamon Press.

Teller, J., Kock, A., & Gemünden, H. G. (2014). Risk management in project portfolios is more than managing project risks: A contingency perspective on risk management. *Project Management Journal, 45*, 67-80.

Radboud Universiteit

Tuman, G. (1983). Development and implementation of effective project management information and control systems. In *Project Management Handbook* (pp. 495-532). New York: Van Nostrand Reinhold CO.

Vaara, E., & Whittington, R. (2012). Strategy-as-Practice: Taking Social Practices Seriously. *The academy of Management Annals*, 1-52.

Verner, J., & Abdullah, L. (2011). Exploratory case study research: Outsourced project failure. *Information and Software Technology, 54 (8)*, 866-886.

Vroom, V. (1964). *Work and motivation.* New York: Wiley.

Weeth, A., Prigge, J.-K., & Homburg, C. (2020). The Role of Departmental Thought Worlds in Shaping Escalation of Commitment in New Product Development Projects. *Journal of Product innovation Management, 37 (1)*, 48-73.

Whitley, R. (2006). Project-based firms: new organizational form or variations on a theme? *Industrial and Corporate Change, 15*, 77-99.

Whyte, G. (1986). Escalation Commitment to a Course of Action: A reinterpretation. *Academy of Management Review, 11 (2)*, 311-321.

Williams, T. (2017). The Nature of Risk in Complex Projects. *Project Management Journal, 48 (4)*, 55-66.

Wilson, D., Pelham, N., Connell, D., & Duffield, C. (2016). The effect of governance on Information Technology Projects. *AIPM*, 1-16.

Wong, K. F., & Kwong, J. Y. (2007). The Role of Anticipated Regret in Escalation of Commitment. *Journal of Applied Psychology, 92 (2)*, 545–554.

Wong, K. F., & Kwong, J. Y. (2007). The Role of Anticipated Regret in Escalation of Commitment. *Journal of Applied Psychology*, 545–554.

Wong, K., Yik, M., & Kwong, J. (2006). Understanding the Emotional Aspects of Escalation of Commitment: The Role of Negative Affect. *Journal of Applied Psychology, 91 (2)*, 282–297.

Wong, K., Yik, M., & Kwong, J. (2006). Understanding the Emotional Aspects of Escalation of Commitment: The Role of Negative Affect. *Journal of Applied Psychology*, 282–297.

Yeo, K. (2002). Critical failure factors in information system projects. *International Journal of Project Management, 20*, 241-246.

Yin, R. (1989). *Case Study Research: Design and Methods.* London: Sage.

Yin, R. (2014). *Case Study Research Design and Methods.* Thousand Oaks: SAGE.

Zorn, M. L., DeGhetto, K. K., & Combs, J. G. (2020). The impact of hiring directors' choice-supportive bias and escalation of commitment on CEO compensation and dismissal following poor performance: A multimethod study. *Strategic Management Journal, 41 (2)*, 308-339.

Radboud Universiteit

Appendix A

Appendix A: Master thesis planning

Appendix A consists of the master thesis planning. A detailed planning has been added in the form of a table. This planning has the subjects, start and due dates. Lastly milestones and if the subject is being reviewed, are also added to this table. For this master thesis trajectory half a year is set out to complete this research. A detailed planning is added in the table below. The first month of this period was used to formulate the research question, write an introduction and to discuss the outline of the research project with Beaufort.

Subject	Start date	Date due	Milestone	Being reviewed
Concept of research proposal	14-02-2021	28-02-2021		Yes
Making an interview protocol	01-03-2021	10-03-2021		
Planning interviews	01-03-2021	12-03-2021		
Adjusting the concept research proposal	03-03-2021	25-03-2021		
Submission of research proposal		26-03-2021		
Assessment of research proposal		09-04-2021	Yes	Yes
Conducting interviews	29-03-2021	21-04-2021		
Processing interview data	29-03-2021	21-04-2021		
Possible submission revised research proposal		14-05-2021	Yes	Yes
Finishing data analysis	22-04-2021	15-05-2021		
Finish writing master thesis	16-05-2021	06-06-2021		
Finish checking master thesis	07-06-2021	13-06-2021		
Deadline submission master thesis		14-06-2021	Yes	Yes
Defence master thesis		End of June and beginning of July 2021	Yes	Yes
Possible submission second chance master thesis		09-08-2021		
Possible second chance to defend master thesis		Second half of August 2021	Yes	Yes

Table 3: Project planning

The planning has due dates that can be seen as deadlines. The planning above works as a guideline for the master thesis period. It can be adjusted when successfully completing tasks advances faster than excepted. When there are some unforeseen delays in the period, the planning can be adjusted when required.

Radboud Universiteit

Appendix B

Appendix B: Interview protocol

Wij als Beaufort gaan in samenwerking met de Radboud Universiteit project-falen onderzoeken. Dit doen we om de antecedenten/indicatoren (oorzaken) van project-falen en de effecten hiervan in kaart te brengen. Het uiteindelijke doel van dit onderzoek is om beter te kunnen anticiperen op, en scherper en tijdig dergelijk project-falen te voorspellen. Project-falen betreft in dit onderzoek het financieel falen van projecten. Concreet wanneer een project buiten het geplande budget treedt, spreken we in dit onderzoek over project-falen.

Het onderzoek gaat plaatsvinden in vier sectoren (bouw, scheepsbouw, offshore en IT) door middel van interviews. De interviews zijn de basis van een vergelijkende casestudy en uiteindelijk is dit allemaal ten behoeve van een master thesis en boekje omtrent project-falen.

Wij zullen starten met een aantal algemene vragen. Hierna wordt per onderwerp uitgelegd wat van u gevraagd wordt.

Alle namen zullen in het onderzoek en het boekje geanonimiseerd worden. Is het goed als wij dit interview opnemen voor een correcte verwerking van de data? Na het onderzoek worden de opnames verwijdert.

1. Algemeen (10 min)
1. Kunt u zichzelf kort introduceren en vertellen welke functie u binnen uw bedrijf uitvoert?
2. Neemt uw bedrijf project aan, voert uw bedrijf projecten uit of bent u een externe partij bij projecten?
    A. Over wat voor soort/type projecten gaat dit?
    B. In geval van een project aannemer: hoe neemt uw bedrijf projecten aan?

2. Bespreken uitkomsten stellingen (10 min)
Vooraf hebben wij u een aantal stellingen opgestuurd. Graag lopen wij de belangrijkste bevinden van deze stellingen met u door. Bijvoorbeeld:

- Aannemen van projecten
- Financiële positie van het bedrijf
- Prijs van het project
- Bezettingsgraad van het bedrijf
- Strategie van het bedrijf
- Antecedenten van project-falen

3. Project falen - oorzaken (15 min)
1. Wat zijn in uw ervaring de voornaamste oorzaken van project-falen?
    A. Wat is het effect van deze oorzaken op het project resultaat?
2. Vindt er een combinatie of een cascade van deze oorzaken plaats?
    A. Wat is het effect van deze combinatie of cascade van oorzaken op het project resultaat?
3. Hoe zou je deze oorzaken kunnen voorkomen?

Escalatie (of commitment) gedrag binnen een project vindt plaats wanneer de huidige werkwijze (van een project) wordt doorgezet terwijl dit amper of geen uitzicht heeft op het behalen van de projectdoelen.

4. Project falen - gedrag (10 min)
1. Vindt dit soort gedrag in uw ervaring plaats in projecten?
2. Wat was het effect van dit gedrag op het project resultaat?
3. Hoe zou dit gedrag voorkomen kunnen worden?

5. Project-falen - generieke boom en projectmanagement model (10 min)
1. Als u naar de boom (figuur 1) kijkt, wat is hiervan de belangrijkste oorzaak van project-falen?
   A. Wat is de ergste combinatie van oorzaken?
2. Waar vinden de belangrijkste oorzaken van project-falen plaats in het proces van model 1?
3. Waar vindt escalatie (of commitment) gedrag plaats in dit model?

6. Additionele vragen
1. Wat zijn voor u red flags bij projecten waarvan u gealarmeerd wordt?
2. Wat zijn in uw ervaring verborgen red flags?

Einde van het interview.

Wij zullen u op de hoogte houden omtrent de uitkomsten van het onderzoek. U ontvangt het boekje omtrent project-falen wanneer deze definitief is. Tot slot, kent u nog mensen binnen uw bedrijf die mogelijk open staan voor eenzelfde interview?

Hartelijk dank voor uw deelname en wij zullen in de nabije toekomst contact met u opnemen over de uitkomsten van het onderzoek.

| Onderwerp	Aantal vragen	Aantal minuten
1. Algemeen	2 (2 deelvragen)	10
2. Bespreken uitkomsten stellingen	-	10
3. Project falen - oorzaken	3 (2 deelvragen)	15
4. Project falen - gedrag	3	10
5. Project falen - generieke boom en projectmanagement model	3 (1 deelvraag)	10
6. Additionele vragen	2	-
Totaal:	**12 vragen (4 deelvraag)**	**55 min**

Additional information van het interview protocol

Figuur 1: Generieke boom:
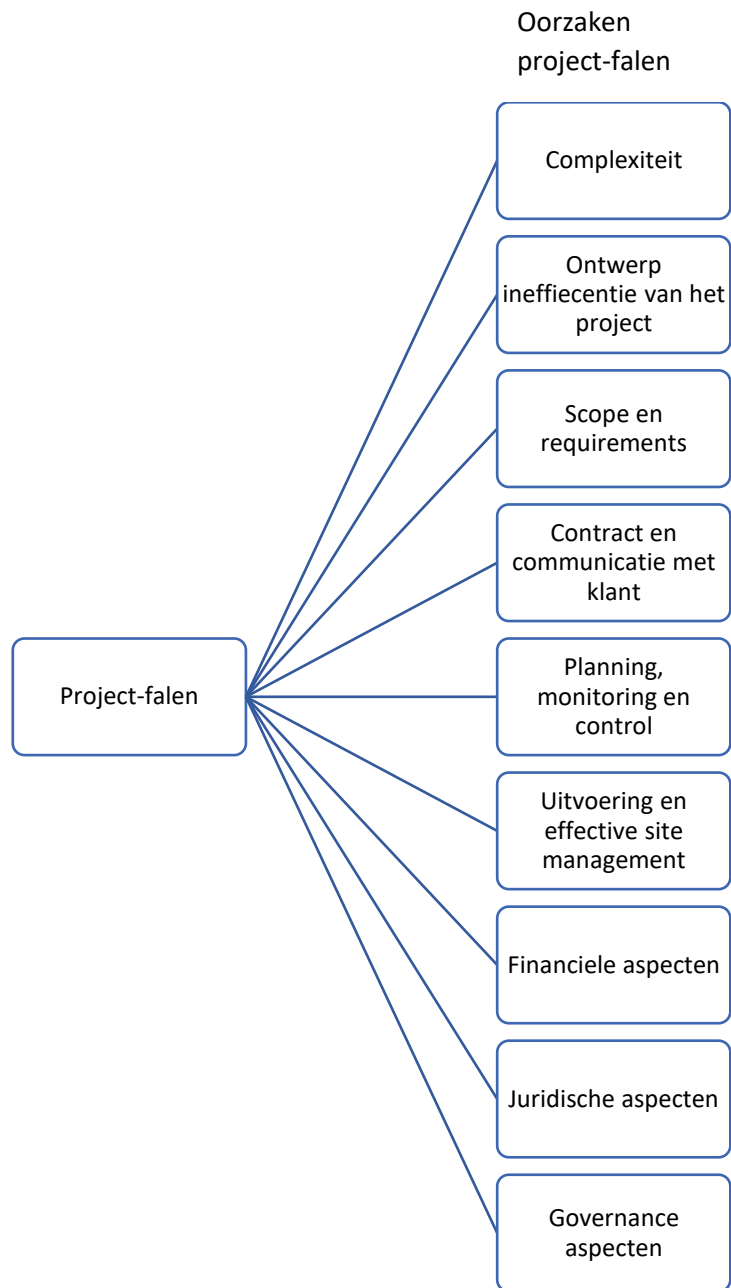
Figuur 1: Boom met generieke antecedenten van project-falen

Model 1: Project management model
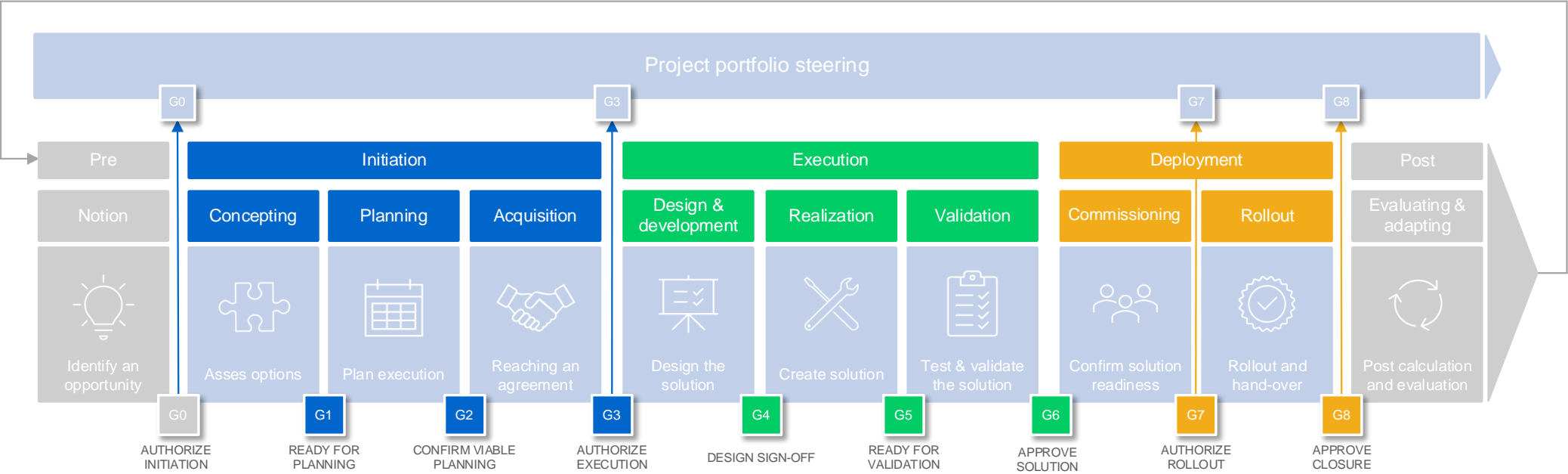
Model 1: Project management model

Appendix C

Appendix C: Interview statements

VRAGENLIJST ONDERZOEK "RED FLAGS IN PROJECTMANAGEMENT"

Introductie
Wij vragen u om de onderstaande stellingen te beantwoorden. Indien u geen mening over de stelling heeft of dat de stelling geen betrekking heeft op uw werkervaring/positie kunt u de stelling overslaan en doorgaan naar de volgende.

Definitie "Project-falen"
De volgende definitie van project-falen wordt binnen dit onderzoek gehanteerd:

Project-falen betreft in dit onderzoek het **financieel** falen van projecten. Concreet wanneer een project buiten het geplande budget treedt, spreken we in dit onderzoek over project-falen.

Schaal
Om de stellingen te beoordelen kunt u de volgende schaal hanteren
1. Helemaal mee oneens
2. Mee oneens
3. Gedeeltelijk mee oneens
4. Neutraal
5. Gedeeltelijk mee eens
6. Mee eens
7. Helemaal mee eens

Het invullen van de vragenlijst neemt ongeveer 5 minuten in beslag

Stellingen

Algemene stellingen project-falen	1	2	3	4	5	6	7
Het uitvoeren van projecten op basis van een <u>eerste</u> samenwerking (tussen opdrachtgever en opdrachtnemer), veroorzaakt eerder project-falen	( )	( )	( )	( )	( )	( )	( )
Het uitvoeren van projecten op basis van een <u>eerdere</u> samenwerking (tussen opdrachtgever en opdrachtnemer), veroorzaakt eerder project-falen	( )	( )	( )	( )	( )	( )	( )
Door een slechte financiële positie van het bedrijf die het project aanneemt, worden eerder projecten aangenomen met een hogere kans op project-falen	( )	( )	( )	( )	( )	( )	( )
Door onderbezetting in het bedrijf die het project aanneemt, worden eerder projecten aangenomen met een hogere kans op project-falen	( )	( )	( )	( )	( )	( )	( )

Radboud Universiteit

Stelling	1	2	3	4	5	6	7
Door een slechte financiële positie van het bedrijf die het project aanneemt, worden eerder projecten aangenomen die amper of niet rendabel zijn	( )	( )	( )	( )	( )	( )	( )
Door onderbezetting in het bedrijf die het project aanneemt, worden eerder projecten aangenomen die amper of niet rendabel zijn	( )	( )	( )	( )	( )	( )	( )
Als een project voor een lage prijs wordt aangenomen, dan neemt de kwaliteit van het project af	( )	( )	( )	( )	( )	( )	( )
De prijs van een project is onlosmakelijk met de kwaliteit en snelheid van een project verbonden.	( )	( )	( )	( )	( )	( )	( )
Als een bedrijf een project te snel wil doen, dan is de kans op project-falen groter	( )	( )	( )	( )	( )	( )	( )
Dekkingstekort is gevaarlijker voor een projectorganisatie dan projectverlies	( )	( )	( )	( )	( )	( )	( )
Een discrepantie tussen de strategie van het bedrijf (die het project aanneemt) en het uit te voeren project, veroorzaakt eerder project falen	( )	( )	( )	( )	( )	( )	( )

Stellingen gericht op de oorzaken van project-falen	1	2	3	4	5	6	7
De meest voorkomende oorzaken van project-falen is gelegen in:							
A. De complexiteit van een project	( )	( )	( )	( )	( )	( )	( )
B. Ontwerp inefficiëntie van een project	( )	( )	( )	( )	( )	( )	( )
C. De scope, demarcatie en requirements van een project	( )	( )	( )	( )	( )	( )	( )
D. Contact en communicatie met de klant tijdens een project	( )	( )	( )	( )	( )	( )	( )
E. Communicatie binnen het projectteam tijdens een project	( )	( )	( )	( )	( )	( )	( )
F. Gebrekkige planning, monitoring en control van een project	( )	( )	( )	( )	( )	( )	( )
G. Uitvoering en effectief site management van een project	( )	( )	( )	( )	( )	( )	( )
H. Financiële aspecten van een project	( )	( )	( )	( )	( )	( )	( )
I. Juridische aspecten van een project	( )	( )	( )	( )	( )	( )	( )
J. Governance (inrichtings-)aspecten van een projectorganisatie	( )	( )	( )	( )	( )	( )	( )
Project-falen komt primair doordat men:							
A. De eigen organisatie niet goed kent (over-/onderschat)	( )	( )	( )	( )	( )	( )	( )
B. De opdracht niet goed snapt (over-/onderschat)	( )	( )	( )	( )	( )	( )	( )
Het doorzetten van de huidige werkwijze (van een project) terwijl dit amper of geen uitzicht heeft op het behalen van de projectdoelen, komt vaak voor bij projecten	( )	( )	( )	( )	( )	( )	( )
Het doorzetten van de huidige werkwijze (van een project) terwijl dit amper of geen uitzicht heeft op het behalen van de projectdoelen, is een van de meest voorkomende oorzaken van project-falen	( )	( )	( )	( )	( )	( )	( )

Einde van de vragenlijst. Wij danken u hartelijk voor de medewerking!

Appendix D

Appendix D: Outcomes statements

	Stellingen	Interviewees															
		Bouw				Shipping				Offshore				IT			
		Respondent 2	Respondent 3	Respondent 4	Respondent 14	Respondent 6	Respondent 7	Respondent 9	Respondent 12	Respondent 5	Respondent 8	Respondent 15	Respondent 16	Respondent 1	Respondent 10	Respondent 11	Respondent 13
	Stellingen boekje																
1	Het uitvoeren van projecten op basis van een eerste samenwerking (tussen opdrachtgever en opdrachtnemer), veroorzaakt eerder project-falen	5	5	5	5	4	6	4	4	5	4	4	5	5	5	6	5
2	Het uitvoeren van projecten op basis van een eerdere samenwerking (tussen opdrachtgever en opdrachtnemer), veroorzaakt eerder project-falen	2	3	1	3	3	2	3	4	2	2	2	3	4	3	1	5
3	Door een slechte financiële positie van het bedrijf die het project aanneemt, worden eerder projecten aangenomen met een hogere kans op project-falen	2	6	6	7	6	5	6	6	6	5	4	6	5	2	2	6
4	Door onderbezetting in het bedrijf die het project aanneemt, worden eerder projecten aangenomen met een hogere kans op project-falen	2	6	5	2	6	6	6	6	6	5	6	5	4	1	2	3
5	Door een slechte financiële positie van het bedrijf die het project aanneemt, worden eerder projecten aangenomen die amper of niet rendabel zijn	6	5	5	6	4	5	6	6	6	5	4	6	3	2	2	6
6	Door onderbezetting in het bedrijf die het project aanneemt, worden eerder projecten aangenomen die amper of niet rendabel zijn	2	5	1	2	6	5	6	7	6	5	6	3	3	1	2	6
7	Als een project voor een lage prijs wordt aangenomen, dan neemt de kwaliteit van het project af	6	4	1	6	2	4	2	4	4	3	2	5	6	5	2	6
8	De prijs van een project is onlosmakelijk met de kwaliteit en snelheid van een project verbonden.	5	7	1	6	4	2	3	3	4	3	2	6	5	7	2	4
9	Als een bedrijf een project te snel wil doen, dan is de kans op project-falen groter		6	5	5	3	4	6	5	6	3	4	6	4	6	6	6
10	Dekkingstekort is gevaarlijker voor een projectorganisatie dan projectverlies	2	2	1	4	4	4	3	3	2	6	5		5	5	4	4
11	Een discrepantie tussen de strategie van het bedrijf (die het project aanneemt) en het uit te voeren project, veroorzaakt eerder project falen	6	6	6	6	6	4	3	7	6	4	6	6	7	4	7	6

Radboud Universiteit

	Stellingen thesis + boekje																
12	De meest voorkomende oorzaken van project-falen is gelegen in: A. De complexiteit van een project	6	6	7	6	5	5	6	4	5	3	3	4	5	5	3	6
13	B. Ontwerp inefficiëntie van een project	4	6	7	6	6	5	6	4	5	6	5	4	4	5	5	6
14	C. De scope, demarcatie en requirements van een project	6	6	5	4	6	5	6	7	5	4	7	6	5	2	7	6
15	D. Contact en communicatie met de klant tijdens een project	6	6	5	6	6	7	7	6	5	7	5	4	6	6	6	6
16	E. Communicatie binnen het projectteam tijdens een project	5	6	6	6	7	6	6	6	3	6	7	6	6	5	6	6
17	F. Gebrekkige planning, monitoring en control van een project	6	6	7	7	6	5	5	5	5	7	7	6	3	7	6	6
18	G. Uitvoering en effectief site management van een project	4	6	6	6	5	5	6	3	4	3	5	4	3	7	5	6
19	H. Financiële aspecten van een project	5	6	5	6	5	4	6	4	3	6	3	7	4	4	3	6
20	I. Juridische aspecten van een project	6	6	4	5	5	5	5	5	3	6	2	4	4	3	2	6
21	J. Governance (inrichtings-)aspecten van een projectorganisatie	5	6	4	5	5	5	4	6	3	7		4	7	5	6	6
22	Project-falen komt primair doordat men: A. De eigen organisatie niet goed kent (over-/onderschat)	5	4	5	4		5	3	5	5	5	6	6	3	5	2	6
23	B. De opdracht niet goed snapt (over-/onderschat)	6	5	7	4	6	5	3	5	5	4	7	6	5	6	5	6
24	Het doorzetten van de huidige werkwijze (van een project) terwijl dit amper of geen uitzicht heeft op het behalen van de projectdoelen, komt vaak voor bij projecten	6	4	4	6	4	5	4	5	4	6	3	5	5		5	6
25	Het doorzetten van de huidige werkwijze (van een project) terwijl dit amper of geen uitzicht heeft op het behalen van de projectdoelen, is een van de meest voorkomende oorzaken van project-falen	6	4	3	3	4	5	4	5	2	4	3	5	4		2	6

Appendix E

Appendix E: Code Tree
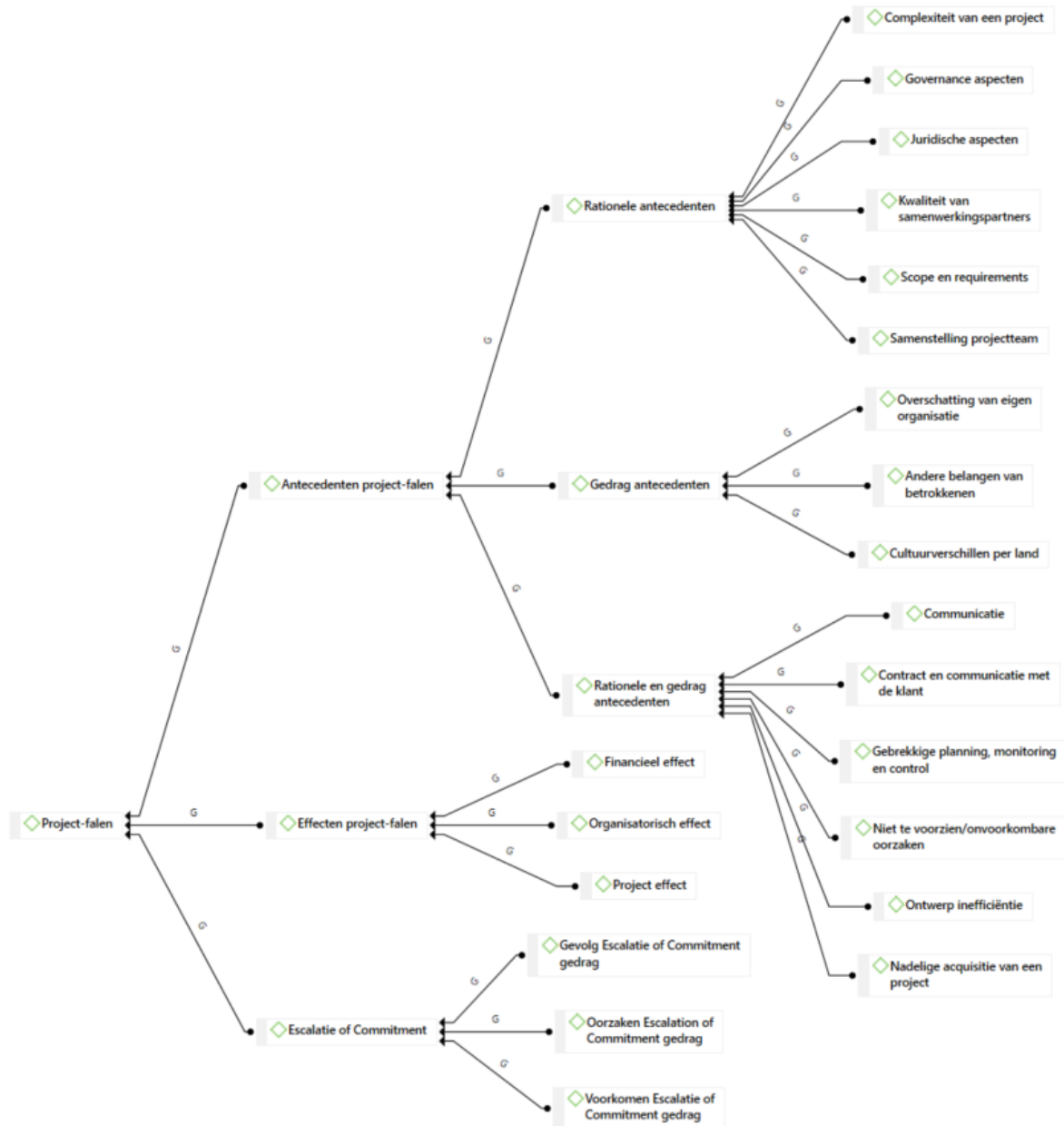
Appendix F

Appendix F: Summaries of the antecedents of project failure

The comparative tables (4, 6, 8 and 10) of paragraph 4.1 are based upon these summaries of the interview transcripts regarding antecedents of project failure. These summaries were made in order to make the research more reliable and to ensure that all antecedents were accounted for. All of the results below are direct results from the interviewees. This meaning that no interpretations were done by the researcher and that these summaries are only based upon answers from the interviewees themselves (they can consequently all be related back to the interview transcripts).

Antecedents of project failure: Construction The first construction case of this study, case 1, shows that rational antecedents of project failure include incorrect risk assessment, incorrect risk distribution, a non divers project team, scope and requirements issues and governance related issues. Case 1 shows that behavioural antecedents can encompass fear of opposing a bad acquisition, always seeking something new with the acquisition of new projects and psychological aspects of humans. The combination of rational and behavioural antecedents within case 1 illustrates that a bad acquisition in the initiation phase and financial pressure during the acquisition phase can cause project failure. Case 2 exhibits that rational antecedents can cause project failure due to the shift of the design from the client to the contractor and design inefficiency. This case shows that behavioural antecedents include different interest of people, ignoring risks, opportunism/eagerness during the acquisition phase and underestimation due to opportunism. Case 2 also shows that the combination of rational and behavioural antecedents can be present in different interpretation of contracts, cooperation between client and contractor, contract and communication with the client and the cooperation within the project team. Case 3 exhibits that rational antecedents of project failure include working in a new segment, quality of the cooperation partner, timeliness of the procurement, contracting, design inefficiency (see fragment 37), norms not up to par, low quality of the planning, complexity in general (see fragment 37) and that complexity is not recognized in the contract. The behavioural antecedents of a bad acquisition because of turnover eagerness and strained acquisition caused by previous project losses were present in case 3. In case 3 the combination of rational and behavioural antecedents shows that extra risk due to acquisition in times of crisis, entering a new segment in times of crisis, quality of information and quality of labour, a flawed planning and monitoring and control (see fragment 37) caused project failure. Case 4 shows that the rational antecedents of technical elaboration, design inefficiency and too few competent/good construction builders available within the market can cause project failure. The behavioural side shows the antecedents of missing strong leadership within a project can cause

project failure. The combination of rational and behavioural antecedents within case 4 illustrates that the factors that can cause project failure are: underestimation in the preparation, strained acquisition caused by financial pressure, incorrect architectural design, complexity of the project, execution and effective site management and lastly contract and communication.

''The main points of project failure for me are: the complexity of the work, the design inefficiency of a project and poor planning, monitoring and control of a project''

Fragment 37: CEO of case 3).

Antecedents of project failure: Shipping The first case of the shipping sector, case 5, shows that on the rational side legal aspects can cause project failure. On the behavioural side, case 5 illustrates that cultural differences across countries can cause project failure. Case 5 also shows that the combination of rational and behavioural antecedents was present in three forms of communication (general, internal and communication in combination with alignment). Case 6 illustrates that rational antecedents can cause failure due to flawed engineering, caps on fines and liabilities, not strictly defining extra works, composition of the project team, not instating a contract manager and design inefficiency due to flawed engineering. Case 6 also exhibits that behavioural antecedents can be caused by a lack of discipline and postponing agreements, cultural differences between countries and other interest of employees involved. Case 6 illustrates that the combination of rational and behavioural antecedents can cause project failure due to entering a new market, arrangements that are incorrectly defined, lack of involvement by the board of directors, language barriers in the communication, contract and communication with the customer and uncontrollable external factors. Case 7 shows that the rational antecedents of quality of third parties, time pressure, legal differences between countries and more demanding requirements from the client were present. Within case 7 several behavioural antecedents of project failure were present including the ego of top managers, culture between countries, prestige within the company and other interest of people who are involved. This case also shows that hobbyism and an incentive method (see fragment 38) can cause behavioural failure during the acquisition phase. The combination of rational and behavioural antecedents in case 7 outlines that the amount of orders, too many projects concurrently, a bad tender procedure, communication and flawed planning, monitoring and control occurred. Case 8 shows that rational antecedents can cause project failure by flawed engineering, design inefficiency and scope and requirements. Case 8 displays no specific behavioural antecedents apart from escalation of commitment behaviour. It did show that there were antecedents that were

both rational and behavioural. The combinatorial antecedents included incomplete design due to changes made by the customer, not completing the gate process well and scope creep.

''At company E, you got the bonus when you would close a deal for the project. So if a commercial employee or a CEO closed a deal, than they would portray that the margins of that project seemed attractive. But if you made this transparent, there were no margins at all. The man in question puts his bonus in his pocket and 5 years later the project is delivered or the project has to be delivered and major failures occur''.

Fragment 38: CFO of case 7.

Antecedents of project failure: Offshore The first case of the offshore sector, case 9, exhibits that rational antecedents of project failure consist of the elaboration of the scope, low margins due to a mature market and the complexity of a project. The behavioural antecedents show that appetite/eagerness in the acquisition of a project, overestimating yourself and different interpretations of the contract can cause project failure. Case 9 also shows that the combination of rational and behavioural antecedents can cause project failure due to the power position of the client, the acceptance of extra work and scope and requirements. Case 10 displays that the rational antecedents include wrong assumptions due to previous working experience, legal aspects and the composition of the project team. According to case 10 only the behavioural antecedent of seeing things too complicated was present. Case 10 did show many antecedents that had characteristic of the combination of rational and behavioural antecedents. This combination shows that communication with an external party, project manager has a hard time reading the table, beginners mistakes caused by the lack of experience of the project manager, bad risk assessment, wrong assessment in the tender team, uncontrollable external factors, general assessment errors, contract and communication with the client and execution and effective site management can cause project failure. Case 11 illustrates that rational antecedents of project failure are an unclear scope of work, not the correct employees in the correct places (see fragment 39), a not sharply defined organization (see fragment 39), a bad project definition and scope and requirements. On the behavioural side it shows that behavioural antecedents consisting of compliance, not willing to admit risk due to conflict avoidance (and confirmation bias) and misalignment due to high expectations of their superiors can cause project failure. Case 11 also displays that the combination of rational and behavioural antecedents are completing the tender procedure too fast, unclear agreements, capacity and capability issues. Case 12 exhibits that rational antecedents consist of having no liquidity, market is adverse, financial aspects, legal aspects and flawed planning, monitoring and control. The

behavioural antecedents of case 12 consist of a bad acquisition due to high pressure or fear of losing money, misconception/underestimation of the real world, underestimation of costs, opportunism and overestimating yourself. Case 12 shows that the combination of rational and behavioural antecedents is present in piling too many risks together, internal communication within a project team, communication with stakeholders and transparency.

''And the second big cause is people and organizations. That project teams just don't have the right people in the right places and that the organization is not sharply described''

Fragment 39: Vice president of projects of case 11

Antecedents of project failure: IT Case 13 illustrates that the rational antecedents of too many stakeholders involved and therefore an increase in complexity, legal and compliance issues can cause project failure. Case 13 also shows one behavioural antecedent of the tension/stress when one employee tries to do everything, can cause project failure. Within case 13, there were many antecedents that had a combination of rational and behavioural aspects. This combination was present in communication and alignment, governance in general and unclear governance, bad implementation caused by not involving customers, transitions and migrations and communication with stakeholders and customers. Case 14 exhibits that rational antecedents of knowing your client well, staying in control and scope and requirements and the quality of the cooperation partner can cause project failure. Behavioural antecedents include internal fraud of an employee and other interest of people involved. The combination of rational and behavioural antecedents within case 14 shows that you can be blindsided due to strict requirements, staying in control, not in tune project team, overestimation, difference between a good calculation and a commercial calculation, uncontrollable external factors, flawed planning, monitoring and control and governance related issues. Case number 15 shows only one rational antecedent of project failure (governance related issues) and no specific behavioural antecedents (excluding escalation of commitment behaviour). Case 15 shows that there are a lot of antecedents that have aspects of both rational as well as behavioural antecedents. It shows that the combination of antecedents consists of estimations errors/misjudgement errors (see fragment 40), general communication, internal communication and communication with stakeholders, underestimation of the implementation phase, work experience related failures, uncontrollable external factors, flawed planning, monitoring and control and a bad acquisition due to low prices or unrealistic terms. The final case of this study, case 16, shows that rational antecedents consist of optimizing a system without taking other systems into account, unclear scope and requirements can cause project failure. On the behavioural side this case shows

that resistance to change and making errors on purpose can cause project failure. Case 16 illustrates that the combination of rational and behavioural antecedents was present in a flawed implementation by not involving the customer, uncontrollable external factors, communication with the customer and grip and control.

''I just always assume that people just do their very best and work well. And in this case, she just made a misjudgement and we should have seen that.''

Fragment 40: Industry director of case 15