Reflection in large IT projects

A method for project success focussing on soft factors

Anno Perk BSc.

Master Thesis

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Preface

While writing this preface I realize that this is the final effort in finishing my Master thesis. The thesis concludes the Business Information Technology master programme at the University of Twente which I started two years ago. The entire programme has been a great learning experience and I believe I have grown both personally and professionally during these two years.

This Master thesis is the result of the research I have been conducting at KPMG IT Advisory, Amstelveen. I would not have been able to successfully accomplish this thesis without the help and support of several individuals. Special thanks go to my supervisors who helped me in the process of writing this thesis. Firstly, I would like to thank my University supervisors, Dr. Ir. C. P. (Christiaan) Katsma of the faculty of the school of Management and Governance and Drs. C. (Corrie) Huijs of Electrical Engineering, Mathematics and Computer Science. Thank you both for your sharp views on the subject matters discussed in this thesis and for triggering me to dig deeper. Secondly, I would like to thank my supervisor at KPMG, Ir. R. (Ruben) de Wolf RE. From him I received great input for the research, and he helped me to clarify and organize my thoughts when I lost sight of my objectives.

Furthermore, I would like to thank everyone who made a contribution to myself personally or to my work. A special thanks goes to all the individuals I interviewed, who were willing to cooperate and share their views and experiences. Naturally, I also would like to thank all my colleagues, friends and fellow interns at KPMG IT Advisory for providing their professional opinions and feedback.

On a more personal level I would like to thank my family and friends for their support and interest in my research. I express special gratitude to my brother Luitze, for providing his views and ideas on the subject matter. Last but not least, I would like to thank my girlfriend Myra, for her endless faith in me.

Alkmaar, 20 January 2009

Anno Perk

Management summary

It is widely published that both private and governmental organizations have difficulties with successfully managing IT projects. The main factors that influence the success or failure of a project can be classified as either hard or soft. Hard factors are described as measurable factors such as functional requirements or budget restrictions. The soft (also social or human) factors include the interaction and relational factors between project partners.

The objective of this research is to develop a method that provides attention to the soft factors in order to improve the project success. The designed method provides guidelines to improve the relationships and interaction in large IT projects. Hence, the following hypothesis is formulated:

> *The concept of reflection used as a method to improve the collaboration of project partners by focusing on soft factors, adds value to the success of large and complex IT projects contracted by the central government to commercial system developers.*

Designing the reflection method

The main guidelines for the design of the method are derived from a profound literature review and a field study to a method that uses reflection in large infrastructural and construction projects in The Netherlands, called "Bouwreflectie". Multiple interviews with project managers of large IT projects contracted by the central government (client) to commercial system developers (contractor) are used to validate the method and obtain adjustments to improve the method.

Four soft aspects: collaboration, communication, attitude and behaviour

The literature research identified four soft aspects that encompass the various success and failure factors of large IT projects. The four aspects identified: collaboration, communication, attitude and behaviour, serve as key aspects in reflection on large IT projects. These aspects show how the relationship and interaction in a project is arranged. Bouwreflectie also identified these four key aspects in their method for large infrastructural and construction projects.

Relevance of the method

Large IT projects using project management methods like Prince2 and PMBoK still cope with exceeding budgets and plannings and do not deliver according to the specified requirements. It is noticed that the project management methods used in these projects mainly focus on the hard factors and pay only little attention to the soft ones. However, in the literature it is reported that several factors affecting the success and failure of large IT projects can be related to soft factors. Hence, focussing on these soft factors using the reflection method emphasizes the success factors and reduces the factors that cause failure. This increases the success of a large IT project.

Reflection method

In the research reflection is defined as regularly looking back on current and former actions focussing on the four key aspects. During arranged reflection sessions the project managers

of both client and contractor learn and improve their actions for future situations. During the reflection sessions a facilitator, called reflector, helps both client and customer to create understanding in each others motives for their actions during the project. This is done by giving insight into the four identified aspects as they discuss the content and process of the project. The discussed actions are analyzed and alternatives are formulated to improve future acting. From the research four main points for use of reflection in practice are derived:

1. Support must be present from top management of both client and contractor;

2. The project managers of both client and contractor must be willing to conduct reflection. Otherwise, reflection should not even start;

3. The reflector should fulfil the role of a facilitator who helps the project managers reflect. He should not provide advice on the content of the project;

4. The project managers should discuss both process and content and not only focus on the four soft aspects.

Reflection as addition to project management

The reflection method can be used as an addition to currently used project management methods as the reflection method provides attention to the soft side of tasks described in project management methods. The reflector can observe the behaviour and attitude of both client and contractor when they perform tasks described in project management methods. For example when project managers cannot reach an agreement and decide to let top management settle on the subject. By using both the reflection method and project management methods, both soft and hard factors that affect large IT projects are addressed.

Conclusions

This study resulted in a method which intended to improve the project success by focussing on soft aspects of collaboration, communication, attitude and behaviour.

- The domain of a project is not of significant importance for reflection as reflection is based upon Bouwreflectie and no IT specific adjustments are found during the research.

- Both reflection and project management methods can complement each other as the reflection method focuses on the soft aspects of collaboration, communication, attitude and behaviour and project management methods focus mainly on hard factors.

- The research showed that the success of large IT projects can be improved when the designed method is used for large IT projects as it enhances the interaction and working relationship between client and contractor. However, when using reflection one should take the four main points described above into consideration.

Overall, it is concluded that the hypothesis still stands as the designed reflection method can be used to improve the soft side of large IT projects contracted by the central government. By using it in combination with currently used project management methods both hard and soft success and failure factors are addressed and projects success will increase.

The final method is enclosed to this report in a separate document called: "Reflection manual: A method for project success focussing on soft factors". This way it serves as a practical reference book for top management, project managers and facilitators of large IT projects.

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1 Introduction

The first chapter provides an introduction to this research. It starts with background information on the failure of large IT projects followed by the objective of this thesis. This objective is presented together with the hypothesis and research questions by which the objective is achieved. Furthermore, the research approach of this thesis is discussed. Finally, the structure of this thesis is presented.

1.1 Background

Information is an important asset in the success of any business. To increase the effective usage of information, Information Technology (IT) is becoming increasingly important. According to Luftman et al. (1993) IT provides strategic value throughout an organization. This strategic value is created as IT can be used to reduce costs, improve product and service quality and integrate supplier and customer operations. Luftman states there are nearly limitless IT applications that serve both businesses and government to improve productivity. The connectivity that IT offers improves the efficiency and effectiveness of individual workers as well as groups. Because of this connectivity, businesses are able to access new markets and partners. Applying efficient IT solutions enhances the effectiveness of the organization and competitive advantage is created.

Considering the positive capabilities of IT, it seems disappointing to see that only limited success is achieved with the implementation of IT. Research continually shows that both private organizations and the government have difficulties in successfully managing IT projects (Standish group, 2001). Examples of large IT projects of the Dutch central government that have difficulties are: P-direct (by the Ministry of Internal Affairs), NVIS (by the Ministry of Foreign Affairs) and the digital customer file (by UWV), comprising a total loss of tens of millions of Euros.

Several different causes for the problem of these (partially) failing IT projects can be distinguished. A report of the Dutch Court of Audit (Algemene Rekenkamer, 2007a) states that a governmental IT project copes with a tension field of three forces; political-, organizational- and technical complexity. These three forces put pressure on people, resources, time and ambition of a project which can have a negative effect on the work relationship between project partners.

As a result of the report, the Dutch government has decided to install a Chief Information Office (CIO) to large IT projects. The CIO has the task to monitor these large projects and help in the decision making. However, observing the relationship between project partners is not taken into account in the design of his tasks. This relation is important when implementing large IT projects. A strong relation ensures that both project partners keep the same viewpoint during the project and conflicts can be avoided (Lee & Kim, 1999).

To improve the success of large IT projects and avoiding conflicts during the project, KPMG has provided me with the assignment to explore the concept of "Bouwreflectie", and

investigate the applicability and effectiveness of this type of approach for large IT projects contracted by the government. In the infrastructural and construction sector, Bouwreflectie is a known and effective technique to improve the relationship between project partners which focuses on soft factors. Below project partners, soft and hard factors and the Bouwreflectie concept are described.

1.1.1 Project partners

For this research, project partners are defined as the two organizations who work together to achieve a common goal (the delivery of an information system) in an IT project. In large IT projects the project partners are the client and the contractor of the project. This relationship between the project partners is of interest in this study as the project partners of a project have to collaborate to reach common goals.

1.1.2 Soft and hard factors

Most project management methods, like Prince2 and PMBoK, are focused on rational and technical aspects - or hard factors - affecting projects success (Sukhoo et al., 2005). Hard factors like work breakdown, estimations, planning and monitoring progress and budget, are factors that are measurable and controllable in a project. In spite of the focus on these hard factors by project management methods, numerous projects still do not meet expectations or fail completely (Standish Group, 2001).

In the literature emphasis is given to the importance of soft skills in project management (Sukhoo, 2005). Soft skills in project management are often described as non-technical or human skills affecting the project (Baroudi, 2008). For this thesis soft factors are defined as the social factors affecting the interaction and work relationship between people. Wateridge (1999) states that projects have often been perceived to have failed due to lack of attention to soft factors. Providing more attention to these soft factors might be a solution to improve project success, accordingly the success rate of projects.

1.1.3 Bouwreflectie concept

The concept of Bouwreflectie, as derived from the infrastructure sector (fully described in chapter 3) is defined as the process in which the project managers of both client and contractor are facilitated in regular evaluation sessions. These sessions focus on the soft factors of the project. The goal of reflection is to facilitate a continuous and open dialogue to resolve issues before they escalate and in addition maintain a high level of trust between project partners. In this thesis the concept of Bouwreflectie is explored and its relevance for IT projects is investigated.

1.2 Problem statement

The background addressed several issues on the importance of improving the success of IT projects. To narrow down the research field, of particular interest is whether the concept of Bouwreflectie adds value to large IT projects contracted to commercial system developers (Contractor) by the Dutch central government (Client).

The Bouwreflectie concept is seen as an inspiration to design a method which improves the process of large IT projects. As a result, the following objective and hypothesis with its corresponding research questions are defined.

1.2.1 Objective

Create understanding in the concept of reflection, derived from the Bouwreflectie method, and identify how reflection can be used to design a method to improve the performance of large IT projects.

In order to scope, the focus of this research is on large IT projects contracted by the government to commercial system development organisations.

1.2.2 Hypothesis

The concept of reflection used as a method to improve the collaboration of project partners by focusing on soft factors, adds value to the success of large and complex IT projects contracted by the central government to commercial system developers.

1.2.3 Research questions

The hypothesis contains three important domains for this study which are: the success and failure of large IT development projects, the concept of reflection and the design of a method for large IT projects. These three domains are covered using the following sub research questions:

1. *What, according to the literature, are the most relevant success and failure factors of large IT projects?*

   a) What are the characteristics of large IT projects?

   b) What is the definition of project success?

2. *How can the concept of reflection be specified in the domain of large IT implementations?*

   a) What types of reflection exist in management science?

   b) What is a generic applicable definition of reflection that is relevant for improving the project success in large IT implementations?

   c) Do project management methods, used for large IT projects, contain elements of reflection?

3. *How can reflection be embedded in a method that it is applicable and ready to use for large IT projects?*

1.3 Research approach

According to Verschuren and Doorewaard (2005) a research can be either empirically or theoretically oriented. This research contains both parts as can be seen in the research overview presented in Figure 1.1.

This research consists of four phases. First, a literature research is conducted. Secondly, the design of a method improving project success based on the literature and Bouwreflectie method is elaborated. The designed method is improved by consulting field experts in the third part. Eventually conclusions on the research are drawn in the last phase. Each of the four phases is discussed below.
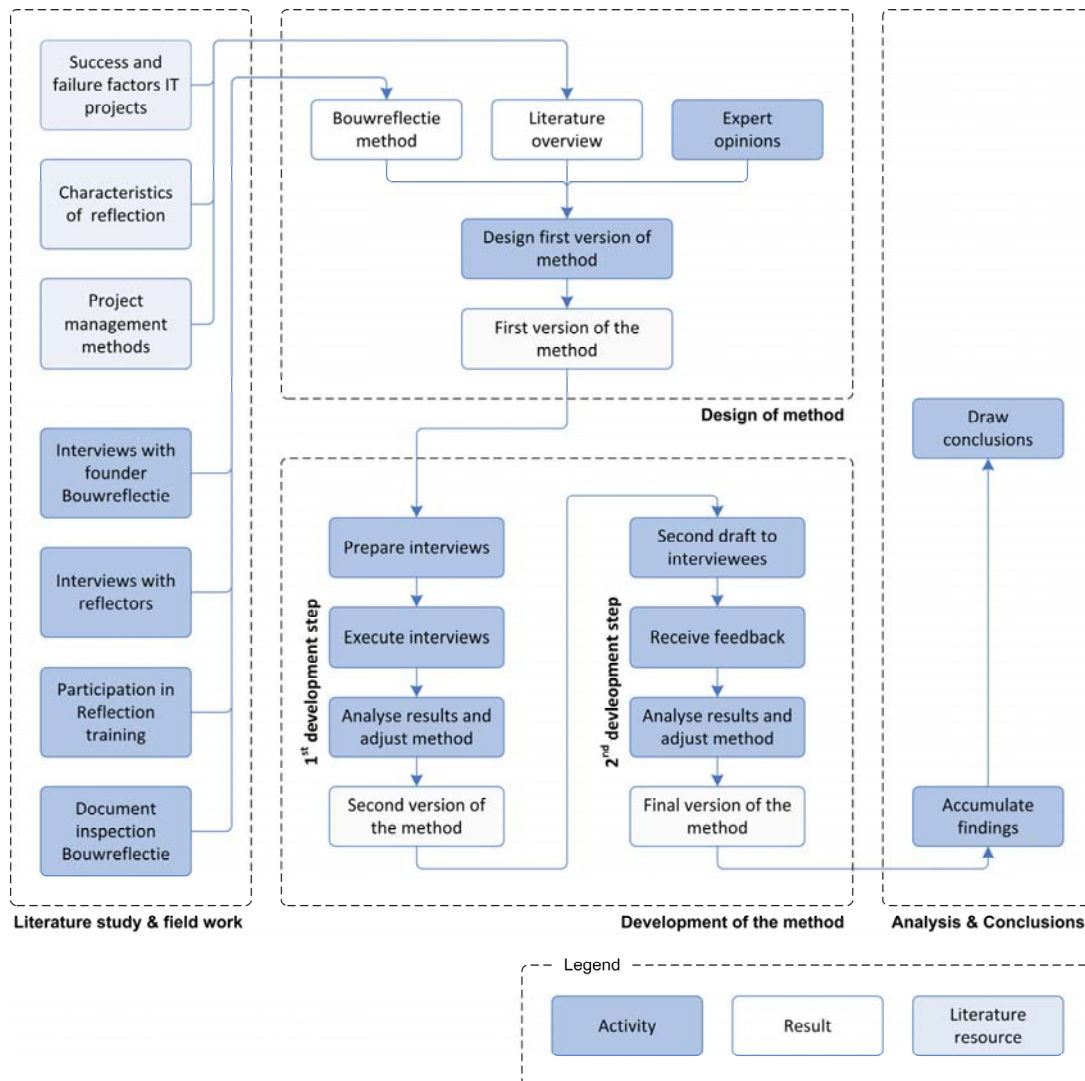
Figure 1.1 - Research overview

1.3.1 Literature study and field work

In the first phase of the thesis a literature study is conducted, which consists of three parts.

In the first part of the literature study, research is conducted on IT projects and especially on the success and failure factors of IT projects. It is researched which factors are important for the success and failure of large IT projects and how these are related to soft factors.

The second part of the literature study gives attention to reflection. It explains reflection from a literature point of view and how it can be used to improve the process of a large IT project.

Third, the literature research gives attention to project management literature. A description is provided of two often used project management methods and elements of reflection that are already embedded in these methods are described.

As part of the literature study, field work has been done to explore the Bouwreflectie method as currently used in the infrastructural sector. The Bouwreflectie method is described by (1) conducting an interview with one of the founders of the Bouwreflectie foundation, (2) interviews with two reflectors, (3) participation in a reflection training and (4) document inspection.

1.3.2 Setup first version of the method

During the second phase of the research the first conceptual version of the method for reflecting on large IT projects is designed. This method is based upon the analysis of the literature study, the Bouwreflectie method and u expert opinions of project advisors at KPMG.

This first design of the method describes what actions can be taken by which individuals during which phases of a project. It is used as a starting point for further development of the method by the use of empirical research.

1.3.3 Development of the method

This phase describes the development of the method for reflecting on large IT projects. This research uses two development steps to further develop of the first conceptual method. During these steps the relevance of the method for use in large IT projects is also investigated. During the first step, interviews with experienced project managers of large IT projects contracted by the government to commercial system developers are held. The results from these interviews are analyzed to improve the conceptual method. This resulted in a second conceptual version of the method.

To improve the method a second development step is conducted. In this second step the improved conceptual method is sent back to the interviewees to ask their final opinion. Last changes from this second step are taken into consideration to come to a final method that can be used in practice.

1.3.4 Analysis and conclusions

During the last phase of this research the results from the development phase are analyzed. This analysis consists of finding similarities and differences between the first draft and the final method. Finally, conclusions are drawn and the applicability in practice is shown.

1.4 Thesis structure

The structure of this thesis is depicted in Figure 1.2. This thesis starts in chapter one with the research introduction, the objective, research questions and research method. Chapter two continues with a literature research to the success and failure of IT projects, reflection and project management methodologies. Chapter three describes the Bouwreflectie method used in infrastructural and construction projects. In Chapter four the literature research together with the Bouwreflectie method are analyzed. This analysis forms the basis for the design of the reflection method as is described in chapter five. Chapter six then describes the empirical research used for the development of the method. Furthermore, chapter seven describes the conclusions, a discussion and recommendations for future research. Finally, this thesis ends with a personal reflection of the process.

As depicted in Figure 1.2 this thesis consists of two parts. Part one, this document, describes the total research and the setup of a method for reflecting on large IT projects. It describes the high level design of the designed method. The second document is a detailed design, which describes the method for reflection on large IT projects in more detail. This second document is provided with this first document and is called: "Reflection manual: A method for project success focussing on soft factors" (Perk, 2009). Together both documents form the final thesis.
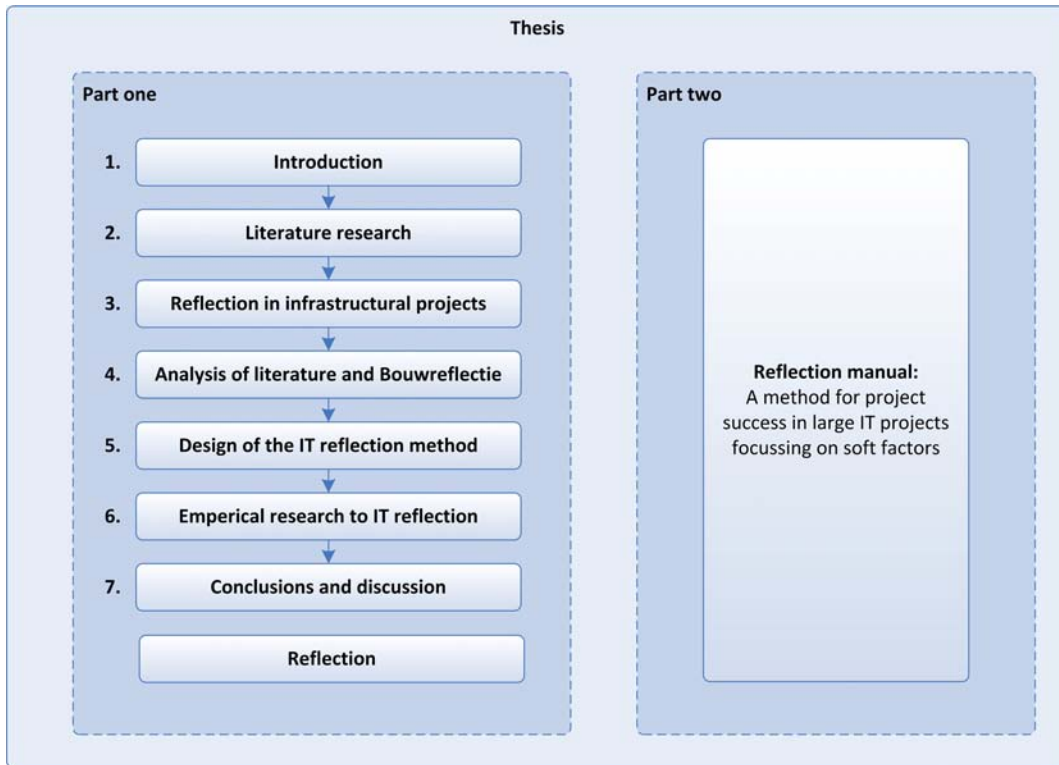
Figure 1.2 - Thesis structure

2 Literature research

This chapter provides an overview of the literature research conducted for this thesis. Section 2.1 first describes the characteristics and success and failure factors of large IT projects. Section 2.2 continues with reflection from a literature point of view. Finally, Section 2.3 explores the extend in which reflection is already embedded in current project management methods.

2.1 Large IT projects

To find the success and failure factors of large IT projects first the characteristics of large IT projects are described and a definition of the success of a project is presented.

2.1.1 Characteristics of large IT projects

A large IT project has several characteristics. This section describes the characteristics of large IT projects used in this research.

Types of IT projects

There are several different types of IT projects, as IT can be implemented in various manners in an organization. In this research three manners are distinguished. Firstly, an organization may implement the IT technology itself. This is only possible if this organization or government has its own IT department and has enough knowledge of the technology that is implemented. A second form is the development of systems by an external commercial system developer or contractor. This means that the client describes the functionality of the system to the commercial system developer and the service provider implements the system. A third manner is the outsourcing of system development altogether. This means that all system development activities are outsourced to a commercial system developer.

This research focuses on large IT projects contracted by the central government. Governmental projects above approximately 250k Euro fall under the European public tender law. This means that the central government is compelled to tender their projects to different commercial system developers. Therefore, large governmental IT projects lead to a client - contractor relationship. As the government specifies the design of the project, these project falls into the second category in which the development is implemented by commercial system developers. Some examples of commercial system developers are: Getronics PinkRoccade, Logica, IBM and Atos Origin.

Aspects of a large IT project

The size of a project increases the difficulty to implement the project. In this research three aspects are taken into consideration to define the size of a project. These aspects are budget, duration and complexity.

Budget

According to Cats-Baril & Thompson (1995) the size of the project budget is important for the success or failure of a project. They have setup a project risk assessment model for IT projects which lead to a certain risk of failure in a project. It shows that with the increase of project budget the risk of failure increases. This is also emphasized by the Standish group (as described in Brandon, 2006). They link the project budget to the success rate of IT projects as depicted in Table 2.1. As projects of the central government often exceed project budgets of 10 million this shows that the chance on project success is only 2 percent.

Table 2.1 - Project budget linked to success rate (Brandon, 2006)

Project budget	Success rate
Under 3 million	33 to 46 percent
Between 3 and 10 million	11 to 23 percent
Over 10 million	2 percent

For this thesis a project is defined as large when it has a budget over 10 million euros. For the Dutch government this means that many of the projects conducted can be seen as large IT projects (Algemene Rekenkamer, 2007b).

Duration

Next to budget, the duration is used to define how large a project is. With an increase in duration the project size increases. In projects with a longer duration, uncertainty can arise in the correctness of the planning as it is difficult to predict future situations. This high uncertainty increases the chance for failure of the project.

As this thesis focuses on governmental projects, which often have very long durations, the projects are defined as large when they have a planned duration of over one year.

Complexity

Complexity is the third aspect in this thesis that describes whether a project is large. The complexity of a project is influenced by several aspects. Three of them are described below.

Firstly, the uniqueness of the project has influence on the complexity. A one of a kind project is often more difficult to manage than projects that have been implemented in other situations as well. In a one of a kind project the difficulty of connecting the implemented system to the current infrastructure is also an important aspect that makes it a more difficult project (Algemene Rekenkamer, 2007a).

Secondly, the number of stakeholders involved in the project can add to the complexity of the project. More stakeholders mean more opinions on the end result of the project. In projects of the central government it is often seen that ten, twenty or even more parties are involved (Algemene Rekenkamer, 2007a). An example of this is the P-Direct project where more then thirty departments, software development and supervisors are working together to develop a central human resource file registration, self-service and salary payment system.

Politics is a third important factor of the project complexity. Especially with projects conducted by the central government one need to be aware of these influences. Below two examples are given that influence IT projects.

- *IT enthusiasm* is where the decision makers in politics think that IT can be used to solve about every problem they face. In spite of the fact they often have too little notion of

what the possibilities of IT actually are. This magnifies the potential risk of overestimating the technical possibilities (Beek, 2002). Combined with an underestimated amount of time, money and manpower this can lead to a far too ambitious project. In ambitious projects commercial system developers also play a large role. Because of commercial reasons they will not confront the political decision makers if the project does not seem feasible. Because political decision makers do not get any comments from the commercial system developers, they might think a successful IT solution is within reach.

Another aspect is that large governmental IT projects fall under the European tender law. This places restrictions on the 'dialogue' between potential contractors and the government. Critical questions about the tender have to be sent to all other tenders. This slows down the information exchange between government and tender (Algemene Rekenkamer, 2007a).

- *A Political deadline* is another factor of political complexity. In governmental IT projects, the deadlines are sometimes determined on a political level. Due dates are often not determined in collaboration with the commercial system developers but based on the political planning. This means project objectives may receive a deadline at the end of the term of the responsible politician. Predefined deadlines, as just described, together with other in advance set conditions, e.g. predefined functionalities, may lead to over ambitious projects which cannot be completed within time (Algemene Rekenkamer, 2007a).

As described, IT projects can become large and complex. For this thesis the following characteristics of large IT projects are described. A project is seen as large when it has the following aspects: a throughput time of more than one year, budget over 10 million euros and complex due to the fact that it is a one of a kind project and has multiple stakeholders involved (more than ten). Large IT projects contracted by the central government are almost all one of a kind projects. These projects are often more complex due to political deadlines and enthusiasm of the politicians.

2.1.2 Success and failure of large IT projects

This section describes the most relevant success and failure factors that affect large IT projects. To come to these factors, first a definition of project success is given, followed by the statistics of the success and failure of large IT projects. Next, the success and failure factors are described and clustered into four generic aspects. These aspects are used as attention points in the design of a method for improvement of the project success.

Definition of project success

In literature there are several different definitions for measuring the success of a project. One of the most common definitions of project success for IT projects is the one the Standish group uses. It defines software project success as meeting budget, time and the end product contains all of the setup requirements (Standish Group, 2001).

Other writers, including Wateridge (1998), agree that the three aspects can be used to assign project success or failure. However, they state that projects that meet all these factors are not automatically successful projects. According to Wateridge it is possible that projects do not meet all these factors but are still considered as successful projects. This can be explained when for example a project is over budget and exceeds planning, but meets the setup specifications. According to the definition of the Standish group the project is not successful. However, if the client and contractor are both satisfied with the end result, the project can be seen as successful by them.

A project can also be seen as successful by project management and team members of the contractor, but is perceived as a failure by the client (Belasi and Tukel, 1996; Yeo, 2002). This can be caused by the fact that the project manager and team exactly implemented what was written in the specifications. For them the project succeeded. However, the client expected something different, for him the project had failed. For the success of a project it is important that both the client and contractor side know what is expected. Therefore, Atkinson (1999) states that factors regarding the organization and stakeholders should be taken into account to measure the success of a project.

For this research, the following definition for project success is setup. It does not only encompass the aspects of time, budget and requirements but also placed emphasis to solving the actual problem an organization has.

> *A project is a success if its deliverable meets planned specifications, is completed within time and budget and solves the business problem that the project was started for.*

Success and failure statistics

The Standish group published several reports on success and failure IT projects over the years. They started in 1994 to classify the success of IT projects into three groups. Projects can be successful, challenged or a failure. The criteria for each group are measured using cost, time and fulfilled requirements. The statistics are derived from both public and private IT projects. In Table 2.2 the criteria that are used by the Standish group to measure the success of a project are shown.

Table 2.2 - Criteria for measurement of project success (Standish group, 2001)

Classification	Description
Successful	A project is identified as successful when it is completed in time and within budget. All user requirements and functions as originally specified should be present.
Challenged	When a project is completed and operational, but over budget, over time estimate or with fewer features than initially specified the project gets the challenged resolution. When a project is challenged it can still mean that it is a good solution but only with for example a budget overrun.
Failed	If an IT project is cancelled before completion, or never implemented at all, the project is identified as failed.

Using these criteria, Figure 2.1 shows that in 2004 only 29 percent of the IT projects succeeded. In that year 53 percent of the projects had the level of challenged and 18 percent of the projects failed completely. This means that in 2004 more then 70 percent of the IT projects did not succeed according to time, budget and with all originally specified requirements. Therefore, it is seen that a lot can be improved to increase the success rate of IT projects.
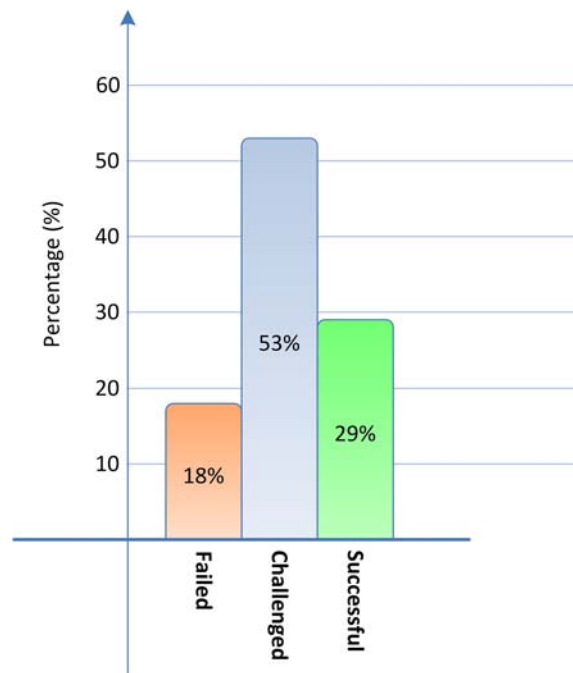
Figure 2.1 - Project outcome statistics (Standish Group, 2004)

Success and failure of public and governmental projects is widely publicized, as most information is publicly available (Algemene Rekenkamer, 2007a). Commercial organizations tend to shield this information to protect the company image. Public projects are open to the public and the results often affect everyone. If public projects fail they do not only fail on, for example exceeding budget or planning, but they also result in the loss of perceived gains of implementing these new systems for the public (Uzuegbunam, 2005). Therefore, more media attention is given to public projects. However, this does not mean that more projects fail in the public sector than do in the private.

Critical success and failure factors

As seen in the definition of project success, in order to come to a successful IT project it has to be well-managed. The scope of the management effort should comprise both the demand and the supply side of the project. Regular and continuous interaction between these sides is crucial for a successful project. During this interaction several aspects can go wrong and lead to exceeding plannings, budget or unfulfilled requirements. Although optimal management of the project does not always lead towards a successful project, strong management will increase the project success. This section describes the critical- success and failure factors of IT projects as described in the literature.

Critical success factors are defined as the factors needed to ensure a successful implementation of an IT project. In the literature several of these factors for success are found. This study concentrates on a research conducted by Nielsen (2002). In his research a list of 29 critical success factors is setup. This list is based upon different papers in which the factors contributed to the success of Enterprise Resource Planning (ERP) implementation projects. As large ERP implementation project comply with the criteria setup for large IT projects, this list can be used for this research.

Critical failure factors are defined as the factors which cause projects to fail. According to Taylor (2002), IT project failure can occur at any point, for various reasons. This is also seen in the research to critical failure factors in the literature. The critical failure factors in this study are derived from two different researches; Martijnse & Noordam (2007) and Taimour (2005). The first research to failure factors of IT projects is conducted by KPMG in 2004. This

research is summarized by Martijnse & Noordam (2007). It shows a ranked list containing the five most important failure factors. Secondly, research of Taimour (2005) is used. He based his findings on a research of the Coverdale Organization. He states that the most important reasons for failure are found in the project management itself and the aligning of IT with organizational cultures. He describes nine primary causes for the failure of complex IT projects.

Table 2.3 - Factors affecting the project

#	Success or failure factor	Nielsen, 2002	Martijnse and Noordam, 2007	Taimour, 2005
1	Lack of appropriate decision making framework	x		
2	Not having a management structure	x		
3	Lack of top management support	x		x
4	Insufficient of external expertise (consultants)	x		
5	Unbalanced skilled project team	x		x
6	Insufficient research prior to project start-up	x		
7	Lack of clear goals, focus and scope	x	x	x
8	Lack of project management	x		
9	Lack of change management	x		
10	Lack of user participation	x		x
11	Lack of education and training	x		
12	Not having a champion present	x		
13	A lot of customization	x		
14	Not reengineering the business process	x		
15	Not having discipline or standardization	x		
16	Lack of effective communications	x	x	x
17	Not having the best people full-time	x		
18	Lack of Technical and business knowledge	x		
19	Misfit in culture	x		
20	Lack of monitoring and evaluating of performance	x		
21	Lack of software development testing and troubleshooting	x		
22	Not managing expectations	x		
23	Unsatisfactory client/contractor partnership	x		
24	No usage of vendors' development tools	x		
25	Choosing packages without vendor selection process	x		
26	Lack of interdepartmental collaboration and communication	x	x	x
27	Underestimate the amount of hardware needed	x		
28	Lack of information and access security	x		
29	Lack of an implementation approach	x		
30	Unclear complexity		x	
31	Technical complexity and technical integration issues		x	
32	Poor planning		x	x
33	Objectives change during the project			x
35	Insufficient skills of the project team			x

As this thesis tries to design a method that reduces the failure of large IT projects, it is important to focus on these factors of IT projects. Therefore, the 29 success factors described by Nielsen (2002) are redefined in a way that they can be seen as possible factors for failure. This list is then combined with the critical failure factors of Martijnse and Noordam (2007) and Taimour (2005) as described above. This is done by merging the two lists and combining equal factors. This results in a list of 35 factors which should be improved to reduce the failure of large IT projects. This list is presented in Table 2.3.

Linking the soft factors

The list of failure factors (Table 2.3) contains both hard and soft factors that affect the success of a large IT project. However, the focus in this research is on the soft factors. In this research the hard factors are ignored as they already receive attention in most project management methods (Sukhoo et al., 2005).

From the Bouwreflectie method (described more thoroughly in Chapter 3) four aspects are derived which serve as attention points to focus on soft factors. These four aspects are: collaboration, communication, attitude and behaviour. It is assumed that these four soft aspects are not specific for the infrastructural sector because they focus on the human interaction that takes place in projects. Therefore, it is stated that these factors can be used as attention points in large IT projects as well. To verify this statement it is investigated whether these four aspects can improve the success and failure factors presented in Table 2.3.

By analyzing the 35 factors affecting the project success of large IT projects, 12 factors are derived that are affected by one or multiple of the four soft aspects. These 12 failure factors are presented in Table 2.3 can be improved by focussing on the soft factors of collaboration, communication, attitude and behaviour. This will result in the improvement of the success of large IT projects. How these aspects are linked to the factors affecting the success of large IT projects is depicted in Table 2.4. Below a short description of each of the four aspects is given together with the explanation of how these aspects affect the success and failure factors derived from the literature.

Table 2.4 – Linkage of failure factors to four soft aspects

#	Success or failure factor	Collaboration	Communication	Attitude	Behaviour
7	Lack of clear goals, focus and scope	x	x		
8	Lack of project management	x	x		
9	Lack of change management	x	x		
10	Lack of user participation		x	x	x
15	Not having discipline or standardization		x	x	x
16	Lack of effective communications		x	x	x
19	Misfit in culture	x	x	x	x
22	Not managing expectations	x	x		
23	Unsatisfactory client/contractor partnership	x			
26	Lack of interdepartmental collaboration and communication	x	x	x	x
32	Poor planning	x	x		
33	Objectives change during the project	x	x		

Collaboration

For this thesis the definition of collaboration of Huxham (1996) is used. He defines collaboration as a positive form of working in association with others for some form of mutual benefits. These shared benefits or goals are achieved by sharing resources and knowledge. This requires a feeling of trust between partners, employees, managers and organizations (Mohr and Spekman, 1994). While collaborating, shared and contrasting goals will arise between the project client and contractor. These, contrasting and mutual goals are depicted in Figure 2.2.
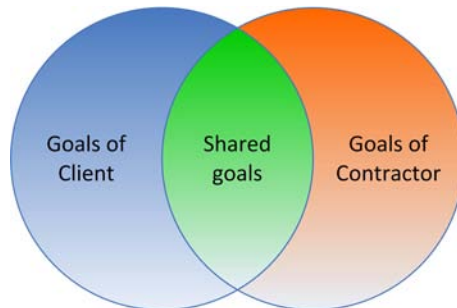
Figure 2.2 - Goals of client and contractor

Placing individual goals and interests before shared ones can form an important cause of conflict in projects (Daft, 2003). A contractor for example wants to make profit and a client wants to have good value for money. If both parties only focus on their own goals and objectives the shared goal of the project partners will not be reached and a project may fail. Therefore, it is important to keep on emphasizing on the shared goals both parties have. By clearly communicating how these goals are reached less misunderstandings will arise. However, in order to collaborate successfully, it is not only important to look at the shared goals but also to communicate the contrasting goals openly with each other. By discussing these contrasting goals both parties can account for them. This creates a respectful attitude and feeling of trust between the participants. This will lead to a more satisfied relationship between client and contractor (#23).

One of the success and failure factors has a direct link to the aspect of collaboration. This is the lack of interdepartmental collaboration and communication (#26) in which collaboration is seen as a factor for failure. When collaboration is weak between the involved parties, the goals, focus and scope can not be well defined (#7) and the planning may not be setup properly (#32). Also, a lack of project- and change management (#8, #9) can arise due to the fact that members in the project team are not willing to share resources with each other because they only aim at their own goals and interests instead of the common ones.

Not respecting each others goals while collaborating can lead to the fact that objectives are not fixed and keep on changing (#33) or that expectations are not managed well (#22). However, when both parties discuss their contrasting and shared goals from the beginning of the project these factors can be improved.

Communication

In order to collaborate, communication is seen as one of the most important aspects. As different parties have different interests, assumptions are made by all involved parties (Mohr and Spekman, 1994). Effective communication (#16) is important to assure that information is timely, accurate and relevant. Accurate information assures that no misinterpretations of information can arise. Misinterpretation of information may lead to work that has to be done over and can lead to conflicts about the responsibility of mistakes made. Kinnula and Juntunen (2005) support this statement and state that the importance of communication cannot be emphasized enough when managing a successful IT project.

Next to the direct factor of effective communication, several of the other factors are also related to communication. Interdepartmental collaboration and communication (#26) can refer to the extend that information is exchanged effectively. By sharing information, project members are able to act independently in the project. This also assures that the objectives are clearly communicated. By communicating during the project makes sure objectives do not have to change frequently (#33). Clear communication can also help to improve user participation for the project (#10) as users are more likely to cooperate when they are more involved in the project. This involvement can be created by communicating what is happening.

When attention is given to the manner individuals are communicating with each other the goals, focus and planning (#7, #32) can be communicated more clearly and the collaboration improves. It also makes sure that expectations (#22) between project managers are managed which on its turn improves the managing of change or project itself (#8, #9).

Attitude

The attitude of individuals in large IT project can influence the other aspects of collaboration, communication and behaviour in a project. Attitude is described as the overall degree of favourability for or against a psychological object (Thurstone, 1931). This means individuals have certain thoughts, emotions or feelings that positively or negatively affect his decision (Daft, 2003). Attitude is seen as intangible because it cannot be seen. However, others can often sense the attitude one has and thus it can have great influence to the success of a project. A negative attitude can be formed by lack of motivation or when an individual is constantly presented with the mistakes he makes. Observing the attitude can be conducted by giving attention to the non-verbal communication.

When individuals have a positive attitude towards the project, this leads to positive reactions by other participants and increases the amount of trust and motivation. On the other hand, negative attitude like disbelieve in the success of the project leads to a negative reaction at the project members. When one project member "does not feel like" communicating with another, decisions cannot be taken and effective communication is lost (#16). Lack of discipline (#15) is a factor that can be caused by a negative attitude as one does not care about what he is doing. A more positive attitude towards the project can result in a higher discipline.

Behaviour

The last aspect that can be linked to the success and failure factors is the behaviour an individual shows during the project. Behaviour is described as "a meaningful reaction on a meaningful situation" in which meaningful means that one uses cognitive processing instead of just reacting to physical stimuli (Orlemans et al., 1997). Behaviour of individuals is indicated as very complex and is linked to the attitude one possess.

The behaviour of an individual can provoke a reaction at somebody else. Especially in projects where multiple individuals have to work together, behaviour of individuals has great influence on the results of the group. Unlike attitude, behaviour is a visible reaction. Because of this visibility, positive or negative behaviour can be spotted and solved with more quickly. Examples of behaviour which can have a negative influence on the interdepartmental collaboration (#26) in a project are: not showing effort, disrespecting each others opinion or not helping each other in difficult situations. These aspects are often caused by a negative attitude. User participation (#10) is linked to this behaviour as the users may not be cooperative to spend their time in projects that may never be completed.

The failure factor of misfit in culture (#19) is difficult to solve. It can be related to all four aspects. By communicating and discussing each others behaviour and attitude this misfit can be reduced and fewer misunderstandings arise. Furthermore, by solving a misfit in culture individuals can show a more positive behaviour and attitude which results in a stronger collaboration and more pleasure in work.

2.1.3 In conclusion

In this section the characteristics of a large IT project are described. A large IT project is defined as a project in which a contractor implements an IT project specified by the client. This project has to have a throughput time of more than one year, is budgeted over 10 million euros and is complex due to the fact that it is a one of a kind project, has multiple stakeholders and has political influences.

It is noticed that several large IT projects fail. This failure is caused by both hard and soft factors affecting the project. This research focuses on soft factors as only little research is conducted on that aspect. It is noticed in the literature research to success and failure factors of IT projects that four soft aspects can positively affect several failure factors in large IT projects. These aspects are: collaboration, communication, attitude and behaviour.

A method that focuses on the soft aspects can help by improving the working relationship and interaction between the involved parties. This leads to increased trust towards each other and commitment to complete the project together grows. Therefore, research is conducted to reflection in which this attention can be generated. Reflection is discussed in the next section.

2.2 Reflection in literature

In the preceding section it is described that soft factors have influence on the process of large IT projects. Giving attention to the aspects collaboration, communication, behaviour and attitude lead to the improvement of the project success. By reflecting, one can provide this attention during the project.

First, the basis of reflection is presented in Section 2.2.1. Secondly, reflection as part of learning is described in Section 2.2.2. Section 2.2.3 then continues with the different types of reflection described in the literature. Finally, Section 2.2.4 will describe some aspects needed for effective reflection.

2.2.1 Basis of reflection

Reflection is a term that has many different meanings depending on the context of the situation. In this thesis reflection is seen as the process of careful consideration of an action. From this point of view the literature on reflection is further analyzed.

In literature, reflection is described as: "the art of observation of acting in a specific situation to learn of it for future situations" (Kolb, 1984). Reflection uses the creation of consciousness of the own acting to explore if, and how your acting can be adjusted or improved for future situations. By creating understanding in your own acting one can also create understanding why others behave as they do (Groen, 2008).

The origin of reflection lies in 1933 starting with John Dewey who introduced the idea of reflective thought. He describes reflection as an active consideration of any belief in the light of the prior knowledge and future objectives (Dewey, 1933).

Dewey considered reflection to be a special form of problem solving, thinking to resolve an issue which involved active chaining and careful ordering of ideas linking with its predecessors. Reflective thinking generally addresses practical problems. These problems

may lead to doubt and confusion before a possible solution is reached (Hatton and Smith, 1994).

Schon (1983) defines that reflection is intimately linked to action. He states that professionals should learn to frame and reframe the often complex and ambiguous problems they are facing, test various interpretations and modify their actions as a result. From these modifications one can learn and use them in new actions.

Reflection is a neutral activity. This means that it does not matter whether your actions resulted in good or bad behaviour. In reflection not only negative aspects but also positive aspects of the taken actions receive attention. From these aspects new ideas can be generated for future actions.

Reflection has a close relationship with evaluation. In evaluation one looks back on situations and investigates whether the work is conducted correct. In reflection on the other hand, the goal is not to investigate whether the actions taken led to a positive or negative result, but it gives attention to how the action was conducted and why one acts as he does (Markman and Mcmullen, 2003).

2.2.2 Reflection as part of learning

Several authors see reflection as a part of learning. For instance, in the nursing sector reflection is used to help nurses learn of the behaviour in actions they perform. Kolb (1984) has defined an experimental learning process in which reflection has a crucial part. His learning process contains four steps, and cannot be completed without all four steps. According to Kolb one learns by (1) having concrete experiences and (2) observing and reflecting upon these concrete experiences. New theories and concepts are brought in to form new plans or possibilities (3). Eventually, a choice is made in those formulated plans or possibilities (4) which results in active experimentation of the plan or possibility. This will lead to a new concrete experience (1). By going through this cycle one learns from concrete experiences. One changes its actions by looking back on certain situations and its linkage to theories or concepts.

During the third step, the reflective observation, the reflection takes place. Reflection is thus an important part of learning. Kolb states that reflection is important because it allows us to critique our taken for granted assumptions, so that we can become receptive to alternative ways of reasoning and behaving.

According to Senge (1990), everyone makes rules and mental models in which we give meaning to our experiences. He describes these mental models as "deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action". As long as our experiences conform to this structure, mental models can remain unmodified and no learning takes place (Gray, 2007). However, when the experiences contradict with the mental models learning can take place. Reflection is then used to look at the experiences and update the mental model.

Reflection in management learning

Reflection can be seen as an important component in management learning. However, it only has received little attention in management literature (Gray, 2007). According to Daudelin (1996) this might be because managers have always placed a higher premium on action rather than on reflection. Seeing reflection as a key role in enabling managers to learn from experience Daudelin (1996) provides the following definition of reflection and learning:

> *Reflection is the process of stepping back from an experience to ponder, carefully and persistently, its meaning to the self through the development of inferences; learning is the creation of meaning from past or current events that serves as a guide for future behaviour.*

Using this definition, reflection is used to learn from past or current events to serve as a guide for future behaviour. Project managers can use reflection to give attention to past or current events in order to improve their actions for future situations.

Single and double loop learning

The learning aspect of reflection can be linked to single and double loop learning. Single loop learning is the search for alternative actions to achieve the same ends. This means one simply adjusts his behaviour to come to the new situation. Next to single loop learning there is double loop learning. Double loop learning is not just merely the search for alternative actions, but also examines the appropriateness and correctness of those actions (Greenwood, 1998). Single loop learning is focused on the result: How can we improve the situation. Double loop learning also gives attention to the examination of the improvement of actions for future situations. Reflection has relations with both single and double loop learning. This depends on what type of reflection is used as described in the following section.

2.2.3 Types of reflection

There are different types of reflection that can be used for improving the action in an experience. Schon (1983) distinguishes two different types of reflection: reflection-in-action and reflection-on-action. Both types of reflection are discussed below. For each type the goal and answers to the questions: who, when and how to reflect are given.

Reflection-in-action

According to Schon (1983) Reflection-in-action involves experimentation and constructing of a new theory of the unique case in the present moment. The goal of reflection-in-action is the creation of awareness of the current activities in order to decide on next activities. In both reflection-in-action and single-loop-learning, the day to day actions stand central (Joldersma et al., 2005). Reflection-in-action is linked to single loop learning because like single loop learning it just changes the action but does not change the values or believes an individual has.

Who?

Reflection-in-action is conducted by single individuals while performing their normal activities.

When?

Reflection-in-action happens spontaneously. This form of reflection occurs when an individual faces a difficult situation which is often stimulated by surprise. During the situation the individual goes into consideration with the situation one is involved in. He can make on-the-spot adjustments to his actions. Reflection-in-action allows an individual to redesign what he is doing at the time he is doing it (Schon, 1983).

How?

As reflection-in-action does not take place at a given moment but happens spontaneous, reflection-in-action is conducted without a coach. Reflection-in-action is a skill one must learn. With the skill present, one can recognize when the situations occur and can start reflecting.

The individual has to be sensitive for the response on his actions. At the same moment this helps to give a new meaning to the situation and to adjust his expectations. New knowledge is being developed and applied at the same time. In the process of reflection-in-action one is intuitively choosing for a certain action (Robertson, 2005; Schon, 1983).

Reflection-on-action

The theory of reflection-on-action has been formed by Schon (1983). It is defined as the examination of an action from a distance. One thinks about their conducted actions after they have occurred in order to influence future actions. Its goal is to improve future situations based upon actions conducted in the past.

Reflection-on-action has a relation with double loop learning as it will also look at changing the values and believes of the actions. By changing the believes and values, the individual will know how to react if a similar situation occurs.

To look at the conducted action, reflection-on-action may involve making connections with internal prior knowledge, or external sources of information. By using external sources of information, like opinions of others, one may find new insights for future actions (Robertson, 2005).

Who?

Reflection-on-action can be conducted in three ways: alone (self reflection), in a group, or with the use of a facilitator.

- **Self reflection**

  In self-reflection an individual wants to reflect on its own acting. He or she is not assisted by others but the process is totally controlled by the individual (Daudelin, 1996). When reflecting alone, reflection is both a way of learning as well as a skill. One has to be able to reflect in order to learn form the reflected.

- **Group reflection**

  In group reflection multiple participants reflect together. These participants can provide support, acknowledgement, challenge each other, identify 'blind spots' and offer alternative perspectives, knowledge or skills (Robertson, 2005; Rogers, 2002). During the reflective session the group members communicate with each other which bring new thoughts to the minds of the participants. Rogers (2002) also defines that reflection in a

group makes sure that one actually starts reflecting because it can be difficult to bring up the self-discipline alone. He also states that when one reflects alone some matters can more easily being dismissed as unimportant. With a group or with a facilitator this will not happen. Reflection in a group is also described in a method called "Action learning" in which multiple individuals reflect together on their experiences (Pedler, 1997).

Each of the participants will see the actions that happened from a different perspective. These due to contradicting goals, but also due to differences in personalities the participants have (Joldersma et al., 2005). Having such different perspectives helps the participants with changing their own mindset. By discussing actions that have happened, the participants can help each other improving their actions.

According to Gray (2007), in group reflection a manager must drop its own interpretations of the situation and listen to the interpretations of others. Managers should critically examine the underlying assumptions behind their own thinking. With that they can develop a shared language. This language arises from investigating situations with other managers.

A problem with group reflection is that some participants might feel uncomfortable because he or she can be seen as the cause of a problem and will fall into a defence mode. However, this is not the intention of group reflection. The intention is to find out why it happened like it happened and how it can be changed (Joldersma et al., 2005; Groen, 2008). Participants also have the tendency to place the blame on someone else instead of their own. Therefore, it is important to see the reflection process as a group process and not as an individual process. The goal of the group process must be to develop individual actions to improve the common goal of the group.

- **Reflection using a facilitator**

  In reflection-on-action a facilitator can be used to lead the reflective session (Boud et al., 1985). The role of the facilitator is to help the participants to reflect on their individual and group actions. With the use of a facilitator the reflection process is more effective. A facilitator has, unlike group members in group reflection, an independent role in the reflection process and is therefore more easily trusted by the participants (Joldersma et al., 2005).

  The facilitator observes the actions of the reflected individuals and reflects its observations back to them. The task of the facilitator is, unlike coaching, not to give answers to questions an individual has, but to let one think of solutions themselves. The role of the facilitator is to help the participants to reflect on their actions. Individuals and groups can be trapped in the process of their own thinking and can create blind spots they do not observe. A facilitator can help with the process of finding blind spots by systematically ask questions to the reflected persons. According to Boud et al. (1985) a facilitator draws out events that at first have gone unnoticed and draws attention to unacknowledged interpretations and speculations. Hereby, he is stimulating the reflection process. By stimulating this process, and letting the individual find solutions themselves, they learn more from the reflection (Jolderma, 2005).

  Boud et al. (1985) states that next to the independency of a facilitator, he must have strong listening skills. Listening skills are important in order to carefully observe the participants and assure that he sees differences in the interpretations and speculations. Next to the characteristics a facilitator should have, he should also perform certain tasks. Boud et al. (1985) describes that the reflector should give support and encouragement to the participant in order to improve its learning capabilities. He should provide access to tools which may be of use during the learning process. Finally, it is vital he does

not offer its own interpretations to the participant as it is the task of the participant to learn from his own behaviour.

Table 2.5 - Tasks of a facilitator (Boud et al., 1985; Daudelin, 1996)

•   Asks open and challenging questions
•   Keeps on asking questions (in depth questioning)
•   Give support and encouragement
•   Provide access to tools that may be of use
•   Do not offer own interpretations of the situation

Furthermore, according to Daudelin (1996) facilitator should use open and challenging questions to let the participant think thoroughly about his actions. He should not be satisfied with the answers of the participants too soon to assure a participant thinks deeply about his actions. Each of the tasks of the facilitator are shown in Table 2.5.

When?

Reflection-on-action takes place after the actions have taken place. One wants to look back at the actions previously performed. This can be directly after the action or after some time. Reflection-on-action can be structured more easily than reflection-in-action. For reflection-on-action one arranges sessions in which the acting in past situations is reflected.

The advantage of reflecting alone is that one can start reflecting at any time because the participant is not dependant upon others. In group reflection or reflection with a facilitator a date and time should be planned in advance (Groen, 2008).

How?

During reflection-on-action the participants step out of their role and look back at their own actions. One can give close attention to the actions he has taken and can formulate changes and improvements for future situations. It requires that the practitioner is not only aware of the situation, but can define the situation in an explicit, non-judgemental way. A facilitator can help the practitioner with this. It includes identifying the differences and similarities with previous experiences. These can be used as input in new experiences (Groen, 2008; Robertson, 2005).

2.2.4 Aspects for effective reflection

As stated before the main problem faced by many managers is that only little time for reflection is taken. Managers rather use the first action that comes into mind than to step back and reflect on what is happening around them. The use of reflection can help structuring the project process and assures managers take time to reflect upon the actions taken.

Environment for reflection

In order to reflect effectively, a save environment for reflection should be created (Groen, 2008). To make reflection effective, the environment needs to be safe, respectful and one has to be willing to participate. It is also important that the participants believe in the added value of reflection (Robertson, 2005; Groen, 2008).

Willingness is important for making reflection effective. If a participant thinks reflection is a waste of time there is no use of reflecting (Brenninkmeijer et al., 2005; Joldersma et al.,

2005). However, in practice it is seen that sometimes one wants to start with reflection when problems have already escalated. This is almost impossible due to the need for a save environment. According to Groen (2008) one should start with reflection when the environment is save.

To get full potential from the reflection-on-action sessions the participants should trust each other. According to Mohr and Spekman (1994) trust is a believe that ones' word is reliable and it will fulfil its obligations as stipulated in the agreement. As experience in relation with a partner develops, trust will evolve. As trust increases, both parties become increasingly ready to work cooperatively towards goals and objectives. If trust gets damaged it is difficult to regain trust. Willingness and trust in a project are interrelated. Trust can grow with willingness of the parties, as willingness grows once a partner is trusted (Kern & Willcocks, 2000).

In order to create an effective reflection session Robertson (2005) states that a facilitator should give attention to the following three aspects on forehand.

1. **Plan a convenient time and place**
   Make sure a good agreement is made on the time and place of the reflective session in which one is not interrupted. This to assure time for reflection is made free by the participants.

2. **Negotiate an area for consideration**
   Question the participants in advance what are aspects they want to focus on. This narrows down the scope and lets the persons think about the experiences they want to talk about. This can mean that the participants decide that they want to focus on specific actions which they consider as important.

3. **Agree on how information is gathered**
   Make sure both the facilitator and the individuals know how information in the process of reflection is gathered. This to prevent individuals to find out afterwards that they do not appreciate the way information about their actions is gathered.

Process of reflection

In order to give structure to the reflection process, this section describes the process of reflection. According to Daudelin (1996), the process of reflection is based on four stages which are (a) articulation of a situation, (b) analysis of that problem, (c) formulation and testing of a tentative theory to explain the problem, and (d) deciding whether to act (see Figure 2.3).
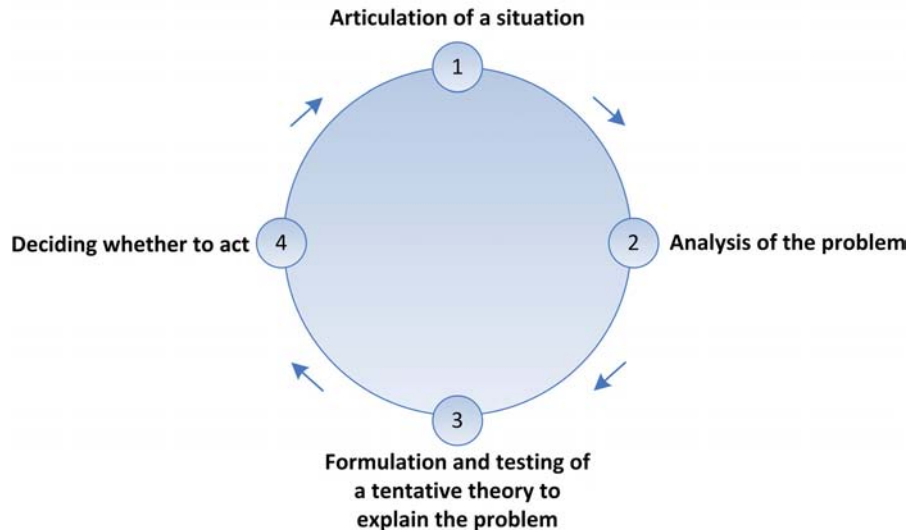
Figure 2.3 - Framework for reflection (Daudelin, 1996)

Stage 1: articulation of a situation

In the first stage one tries to define the situation that will be reflected. Articulating or making the situation explicit is difficult. One has to look for the situation that causes a specific feeling or emotion. Sometimes it helps to realize what situation did not caused the change in feeling or emotion.

For the reflection process between project managers one can use various techniques to make the situation explicit. By observing the participants in their acting and asking questions a facilitator can help to find out what situation can be important to reflect upon.

Stage 2: Analysis of the problem

During the second stage one has to think about how he acted, thought, felt and actually wanted to achieve in the specific situation. During this stage it is important to create understanding how your actions affect the environment (e.g. customer, colleague or clients) and how the environment has affected you. During this analysis stage one has to try to make sense of the situation. Often the rational models and techniques cannot fully explain the decision processes in a project. It are the less rational motives that lead to the eventual decisions. This can be for example: intuition or experience (Weick, 1995). When analyzing the situation it is important to understand how an individual came to a certain decision he took. This process can be related to Sensemaking.

The Sensemaking theory states that the effect of a certain situation depends on how an individual views the situation, how he interprets that situation and how he links consequences to it. Sensemaking is the process in which rational considerations are used to reanalyze the situation and create order in the chaos. Weick illustrates this with the following question: *How can I know what I think until I see what I say?* The last part of this question, in which one sees what he says, the exploration on what is going on is conducted. This is a social process in which everyone explains his own interpretation of the situation. This can eventually lead to knowledge about the own thinking process. So in order to know what one thinks, one has to look back and visualize what he said earlier (Weick, 1995).

Sensemaking is seen as a social activity where different actors are collectively using intervention to individually make sense of the situation. In group situations, Sensemaking enables the individuals to determine the extend of agreement of the group with their own view and vice versa (Thiry, 2001). This is important to understand the needs and

expectations of the participants during a project. To help making sense and make the situation more concrete in order to analyze it, two tools, concept mapping and the nine questions of Korthagen, can be used.
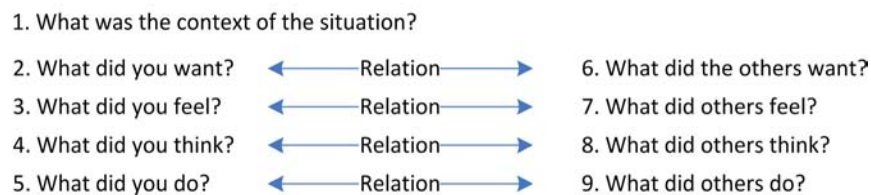
- **Concept mapping**

  A manner to analyze the situation and make the learners understanding of the world more concrete is concept mapping. Concept maps are often confused with mind maps. Mind maps help the participants with rapid brainstorming and formulation of simple associations. Concept mapping however is a more reflective process. It emphasizes more on the 'how' and 'why' links (Gray, 2007).

  Concept mapping is a technique that attempts to graphically show the learners' cognitive framework in a given domain to gain insight into a persons understanding, believes and biases.

  The learner maps a series of concepts hierarchically and then links the concepts with arrows that are labelled with explanatory phrases. This can help the participants in reflection to analyze the situation.

- **Nine questions of Korthagen**

  Analyzing the situation can also be done by determining if everyone has the same view of the situation. This can be done by asking open questions. Korthagen (2003) has developed nine questions (see Figure 2.4) which can help in the process of making the action in reflection more concrete. These nine questions give insight in both the actions of the individual and how one thinks the others are affected by your actions.

1. What was the context of the situation?

2. What did you want?　←——Relation——→　6. What did the others want?

3. What did you feel?　←——Relation——→　7. What did others feel?

4. What did you think?　←——Relation——→　8. What did others think?

5. What did you do?　←——Relation——→　9. What did others do?

Figure 2.4 - Nine questions for concretizing action (Korthagen, 2003)

By making sense of the situation, using concept mapping and the nine questions of Korthagen, situations in projects can be made more explicit. At the same time, participants can research whether their interpretation of the feelings and thoughts of each other are correct.

Stage 3: Formulation and testing of a tentative theory to explain the problem

The third stage in the reflection process uses the concrete situation developed in stage two to create a theory of how the future situation could be and how one is going to come to that future state. One has to formulate the changes that have to be made to improve the actions for the future. This step results in the formulation of several alternatives of which one is chosen in stage four.

Stage 4: Deciding whether to act

During the final stage one decides if one wants to change the situation. This is done by looking at the alternatives created in stage three. By considering the positive and negative aspects of each alternative, one chooses to change the situation. If it is not relevant for future situations to change the actions, it is only a waste of time.

When change is sought, the final step of the process is the articulation of a new way of acting in the future. The participants should make clear agreements about who is going to

do what in order to prevent further misinterpretations. The actual action of the alternative is the starting point for a new reflection cycle.

2.2.5 In conclusion

Reflection is seen as the art of observation of acting to learn of it for future situations. It should not be confused with evaluation in which not the action but the result to which the action has led is analyzed.

Reflection is useful as it tries to change deeply integrated assumptions. These assumptions are sometimes difficult to change when one does not take in mind what the results of his actions are. By reflecting one can see that other solutions could provide an increase of the results. It is seen that by creating understanding in your own behaviour one can create understanding in the behaviour of others. This is helpful as large IT projects always encompass multiple parties that have different interests in the project.

It is seen that two different types of reflection can be distinguished which are reflection-in-action and reflection-on-action (Schon, 1983). Reflection-in-action is conducted during the action and is conducted alone. Reflection-on-action on the other hand is conducted alone or in groups, and one can be assisted by a facilitator. As this form of reflection uses double loop learning it has a larger learning effect than does reflection-in-action, which only uses single loop learning. Furthermore, as reflection-on-action is conducted in sessions it is easier to capture in a method. In the reflection sessions participants can take their time to ponder and discuss the actions taken. By conducting reflection in groups or with a facilitator the participants are able to come to insights that otherwise would be lost.

It is indicated that in order to reflect effectively the participants have to be willing and a feeling of trust must be present. Otherwise, the participants cannot analyze their actions. The theory of Sensemakening (Weick, 1995) could be used to analyze the actions as it helps to make rational considerations and create order in the chaos. The tools of concept mapping (Gray, 2007) and the nine questions of Korthagen (2007) can help during this process as they make it easier to analyze the actions conducted.

Reflection can be seen as the process of stepping back from actions conducted during a project to thoroughly analyse its effect. It can be well used to look at softer aspects of the actions that project managers on both the client and contractor side conduct. Therefore, reflection can help to improve the collaboration, communication, attitude and behaviour in the project and with that help to reduce the failure factors of large IT projects.

2.3   Project management and reflection

In order to design a method for reflection on large IT projects it is researched whether there are aspects of reflection already embedded in project management methods currently used for managing large IT projects.

In search for aspects of reflection in project management methods, Section 2.3.1 first describes two project management methods used in large IT projects. Secondly, the two project management methods are analyzed in Section 2.3.2 and the aspects of reflection present in both methods are discussed.

2.3.1 Project management methods used in large IT projects

Project management methods are used to guide the process of a project. Several different project management methods exist to guide IT projects to success. The first project management methods are based upon the waterfall method which consisted of several sequential project steps, proceeding from one phase into another like a waterfall. Many of

the management methods used today are still inspired by this waterfall model. These days also other more iterative management methods are used to manage IT projects (Cadle and Yeates, 2008). For this thesis two well known project management methods used in large IT projects are briefly discussed: Prince2 and PMBoK.

Prince2

PRojects IN Controlled Environments (Prince2) is a structured, generic method for effective project management aimed on the start-up, realization and closure of projects. Prince2 has its origin in England and is setup by the Office of Government Commerce (OCG) by combining best practices. Originally, the primary intention of Prince2 was for use in IT. Currently Prince2 is used in several sectors and has become the project management method that is used in large parts of Europe (Wideman, 2002). Prince2 is with 75% the most used project management method in IT projects in the Netherlands (Martijnse and Noordam, 2007).

PMBoK

Project Management Body of Knowledge (PMBoK) is one of the first project management methods and developed in America by the Project Management Institute (PMI). PMBoK is used most often in the United States and the Middle East. In Europe PMBoK has only little influence. PMBoK is setup as a general guide to manage most projects of today's time (PMBoK, 2000).

2.3.2 Aspects of reflection in project management methods

As already stated in Section 1.1.2 by Sukhoo et al. (2005), project management methods focus mainly on hard factors. This section explores this statement by researching whether Prince2 and PMBoK give attention to soft aspects. Furthermore, this section investigates whether aspects of reflection are already present in current project management methods. For this exploration the manuals of Prince2 (Onna and Koning, 2007) and PMBoK (PMBoK, 2000) are examined, combined with a document by Wideman (2002) that compares Prince2 with PMBoK.

Prince2

In the research to aspects of reflection in Prince2, it is seen that in the project management method some attention is given to the evaluation of the project to control the project. These evaluations often take place at stage transitions. Also, at the end of the project, an evaluation session is conducted in which the project manager describe lessons learned for future projects. However, these evaluations mainly focus on the content of the project and lack on giving attention to the working relationships in the project. In the documentation of Prince2 no attention is given to interventions in which the project members look back on their actions in order to learn from them to improve the working relationship. Only attention is given to what the participants deliver and if it is delivered on time and conform specifications.

The method also defines a project board in which top management of both client and contractor are present. The project board is present to evaluate the progress and steer in the right direction. However, the project board only comes together when it is necessary. This is called management by exception (Onna and Koning, 2007). This means problems already occurred and can be escalated into conflicts. Therefore, the project board cannot be seen as a pro-active way of looking at the project. During the project board meetings, mostly hard aspects like technical conditions, quality and complexity of the design are covered. How to cope with soft factors is not described in the Prince2 manual.

Prince2 does describe the setup of a communications plan. In this document the information needs of each project party are described. It contains information on who needs what information at what moment in time. Such a communication plan can be a strong mechanism to assure there is clear communication present in the project. However, again the plan focuses too much on the content instead of the actual interaction. For example, the plan does not describe how and in what form to communicate and how this can improve the collaboration. As some forms of communication need verbal interaction and others can be conducted using just email it is important to look at the correct form. Using the wrong form of communication can lead to misunderstandings.

In order to manage the softer aspects of a project, the project manager must have some soft skills. The Prince2 manual does not describe which softer skills a project manager should have.

PMBoK

Like Prince2, PMBoK also does not show any sessions in which some softer factors between participants of a project are discussed. PMBoK also describes that the use of evaluation sessions is important to keep the project on track. Again these sessions are only related to the content of the project and not to improve soft factors like collaboration, communication, attitude and behaviour between participants.

Despite the absence of sessions that focus on the soft aspects, PMBoK has a closer relation with managing people then Prince2. In PMBoK a full chapter is devoted to this section. This chapter gives attention to the development of the team and describes that team building activities should be conducted to improve the performance of the project. PMBoK also states that team behaviour is important. However, regular discussions of action taken by the project managers are not present.

PMBoK also describes a list of soft skills a manager should poses to lead a project. This list contains soft elements which include communication, leading, negotiating, problem solving and influencing the organization. PMBOK simply describes in brief terms what each of the skills is without offering any approach to improve these elements.

The PMBoK method states that it is important that the involved parties should agree on the information needs. This means agreements are made about who needs what information when and how and by whom it is delivered. This can be compared with the communications plan from Prince2. Again it lacks to describe how to cope with soft factors like misinterpretations.

2.3.3 In conclusion

Overall it can be concluded that both Prince2 and PMBoK do not describe any form of reflection focussing on soft factors in their methods. The use of evaluation sessions during and after the project is described in both methods. However, these only focus on the content of the project. The softer side, in which collaboration, communication, attitude and behaviour between individuals is taken into account in both project management methods.

The focus of this research is on improving the soft factors concerning the process and relationship between participants in the project. A method using reflection would increase the discussion between the client and contractor. By discussing the soft aspects of actions in the project one can learn to make adjustments to these actions. Therefore, a method focussing on the soft aspects can be seen as a strong addition to the currently used project management methods.

2.4   Chapter conclusion

This chapter described three aspects from a literature point of view. These three aspects are: success and failure of large IT projects, reflection and project management. With these three aspects the first two research questions, as formulated in Section 1.2.3, are answered.

1.   What, according to the literature, are the most relevant success and failure factors of large IT projects?

This question is answered by first giving a definition of a large IT project. This is defined as an IT development project that has a throughput time of more than one year, costs more than 10 million euros and is complex due to the fact that multiple stakeholders (more than ten) are involved and that it is a one of a kind project.

The literature describes several success and failure factors for large IT projects. In this chapter a list of 29 success factors and 12 failure factors is combined to come to a list of 35 factors that are important for the success or failure of a large IT project. These factors can be seen as the most relevant factors for the success and failure of large IT projects. By linking these factors to the four soft aspects of collaboration, communication, attitude and behaviour derived from the Bouwreflectie method, it is seen that soft factors play a large role in the success and failure of large IT projects. These four aspects can serve as attention points for the design of the method.

2.   How can the concept of reflection be specified in the domain of large IT implementations?

To answer the second research question, the literature on large IT projects, project management and reflection is analyzed. In currently used project management methods in large IT projects, like Prince2 and PMBoK, it is seen that no attention is given to reflection. Only short evaluations at the end of the project are held to look at the process. Only little attention is given to the softer factors of project management.

It is concluded that reflection has not yet received a large role in large IT projects, but that the success and failure factors show that there is a need for improvements on the soft side of projects. Combining the literature on reflection and large IT projects, reflection is seen as the process of stepping back from actions conducted during a project, to thoroughly analyse its effect on both client and contractor with the intention to improve the collaboration, communication, attitude and behaviour in the project.

As reflection is not yet incorporated in currently used project management methods, a method using reflection to focus on the four soft aspects; collaboration, communication, behaviour and attitude can help to improve the success of large IT projects.

3 Reflection in infrastructural projects

To design a method focussing on soft factors using reflection for use in large IT projects, next to the literature described in Chapter 2, a field study to a method developed by the Bouwreflectie foundation is conducted. This foundation has developed a method based on reflection for large infrastructure and building projects contracted by the central government. Since 2007, this method called "Bouwreflectie" is used in approximately 20 governmental projects in The Netherlands and is registered at The Benelux Office for Intellectual Property.

In this chapter an analysis is given of the different parts of the Bouwreflectie method. This is done by conducting an interview with the founder of the Bouwreflectie foundation, interviews with two facilitators, participation in a reflection training and document inspection. First, the concept of reflection as used by Bouwreflectie is explained (Section 3.1). Second, the involved parties in Bouwreflectie are described (Section 3.2) followed by the process steps (Section 3.3). Finally, the context in which the Bouwreflectie method is used is explained (Section 3.4).

3.1 Concept of Bouwreflectie

As with IT projects, several soft factors influence the success and failure of an infrastructural project. The Bouwreflectie foundation noticed this tendency and has setup a method to improve the project success by focussing on the soft factors of collaboration, communication, attitude and behaviour. These four aspects are already described in Section 2.1.2.

The foundation states that a strong relationship between client and contractor is critical for the project success, and with that the success of a project. Zier (1988) confirms this statement as he defines that the quality of a service depends upon the relation between client and contractor. When this is related to project success one can say that the success of a project is dependant upon the quality of the relation between client and contractor.

During a project the situation can arise where both parties have different interpretations of agreements in the contract. By the hectic of the project there is little or no communication and both parties assume that they are on the right track, working towards their combined desired solution. However, this is not where they are heading. At a certain point in time both parties are confronted with the fact that they are not working towards the same solution anymore. At that point, the behaviour of the project managers can change and they might blame each other which results in a conflict.

This process is visualized in Figure 3.1. Often the only possibility to solve the conflict is by using mediation or arbitration which will negatively affect the relationship by the loss of trust. According to Lee and Kim (1999) trust is important when collaborating. They define trust as "a believe that ones' word is reliable and it will fulfil its obligations as stipulated in the agreement". As experience in the relation with a partner develops, trust will evolve. As

trust increases, both parties become increasingly ready to work cooperatively towards goals and objectives. But when a conflict occurs trust can be lost and it is very difficult to regain trust in the project partner and commitment to the project when the conflict has settled.
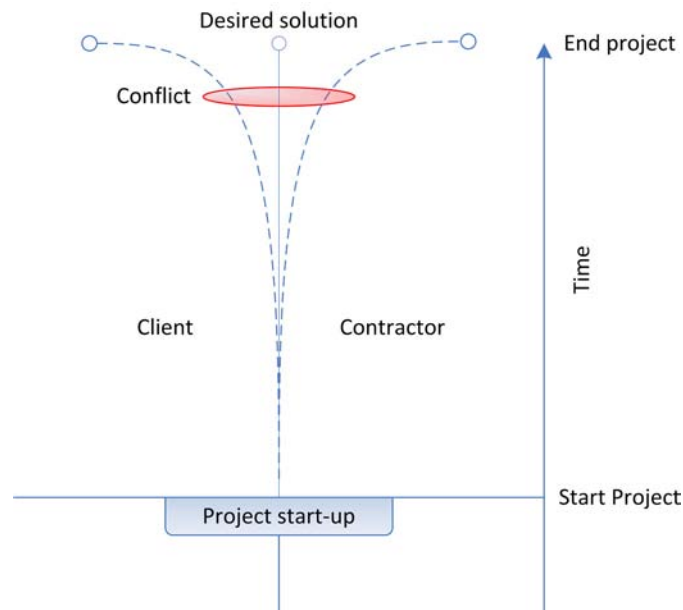
Figure 3.1 - Projects without focusing on the project relationship (Adapted from Bouwreflectie foundation)

By constantly giving attention to the four aspects of collaboration, communication, behaviour and attitude during the project, conflicts can be prevented and a high level of trust can be maintained. This is what the Bouwreflectie method tries to achieve

In Figure 3.2 the process of reflection used in the Bouwreflectie method is shown. It is a repeating process with reflection sessions that take place every 4 to 6 weeks and starts in the project start-up phase (PSU). One can see that with each of the reflection sessions both parties are moving back towards the desired solution instead of moving away from that solution. This way fewer conflicts arise and the process can continue with less interruptions.
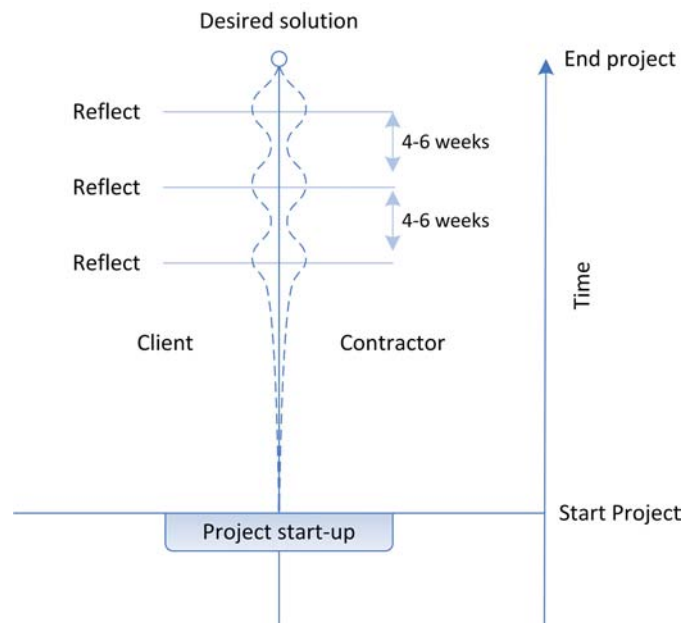
Figure 3.2 – Process of the concept of reflection (adapted from Bouwreflectie interviews)

In each of the repeated reflection sessions a discussion between project managers of both client and contractor is facilitated. Project managers are chosen to reflect on the project as they have a day to day view on the project and have the power to adjust things when necessary.

The regular monitoring of the partnership process in Bouwreflectie is combined with a learning process. This is done so that project managers learn from the actions they have taken during the process and can improve their actions for future situations. It can be seen as a form of group reflection in which the two project managers from client and contractor form the group (see Section 2.2.3). In the method, the project managers of both client and contractor together discuss the problems they face during the project. It is important that the project managers clearly see the goal of reflecting and see it is as a group process where helping each other in the reflection process can lead to a better project. This is also seen in the literature (Section 2.2.3) as an important aspect.

During several reflection sessions, communication on the project process is stimulated so that both client and contractor keep on working towards the same goal. This can be achieved to constantly focus on the aspects of collaboration, communication, behaviour and attitude. This is done with the help of a third party called the "Reflection team" consisting of one individual of the clients' side and one from the contractors' side. This team fulfils the role of facilitator as described in the literature in Section 2.2.3. This reflection team observes the process between client and contractor and reflects, or mirrors, its findings on the process and the way of collaboration back to them. This way both client and contractor can detect troubles in the process quickly and can try to fix those issues before they escalate into a large conflict.

A reflector uses his experience and logical reasoning in combination with a list with points of attention to observe and reflect on the project. During reflection sessions they look at the project process and focus on aspects of the partnership between client and contractor affecting that process. The reflector observes and looks at the following aspects:

- Prevention of different interpretations;
- Better exchange of expectations;
- Improve way of communicating between project managers;

- Improve trust between parties;
- Improve commitment to the project.

Improving these aspects eventually leads towards more successful hard aspects of a project like better quality, lower project costs and a better efficiency. Other positive effects of using reflection are for example: the use of less mediation and arbitration during the project. This is due to the fact that fewer conflicts arise which ultimately can improve the pleasure in the work.

3.2   Involved parties

In the Bouwreflectie method four parties are involved. These are a project manager from client and contractor, the reflection team and the Bouwreflectie foundation. The involved parties are presented in Figure 3.3 and are discussed below.
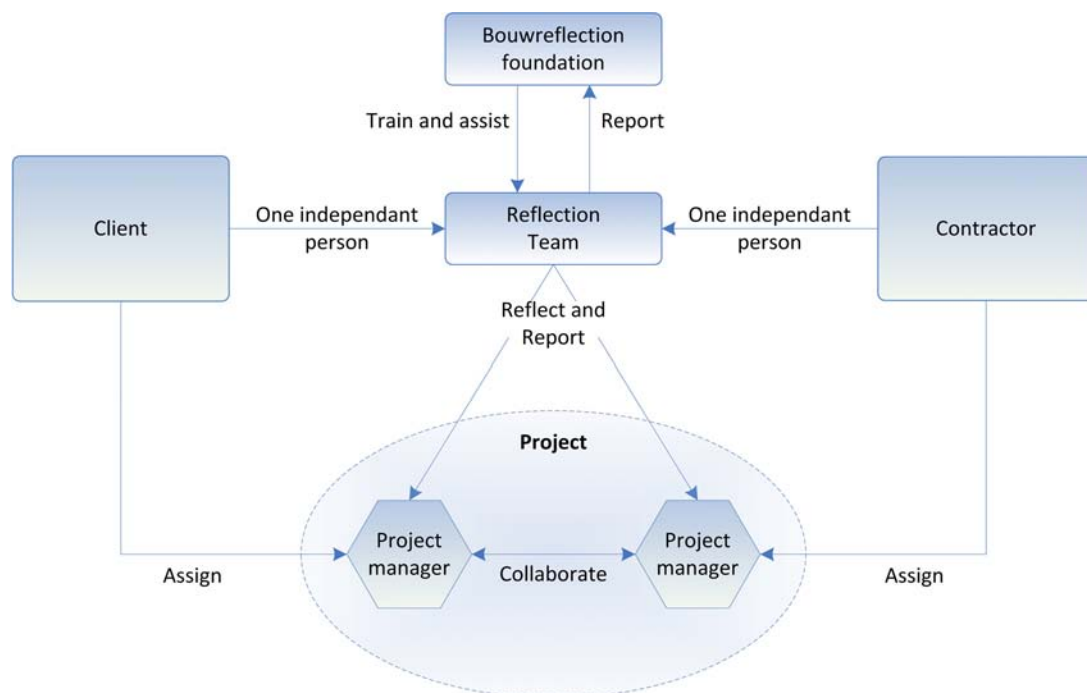
Figure 3.3 - Involved parties and their relations (adapted from Bouwreflectie)

3.2.1 Project manager of client & contractor

Reflection focuses on the partnership between client and contractor. This partnership is manifested in the relation between project managers of both client and contractor. Therefore both project managers of the client and contractor are involved in the reflection process.

Both project managers discuss the problems they face during the project and how this affects the collaboration between client and contractor. By discussing the issues with the project partner solutions can be found together.

Essentially only the project managers of the client and contractor are involved in the reflection sessions. However, it is also possible to bring in extra individuals into the sessions. One must be aware that bringing extra individuals into the sessions should be agreed on by both project managers. The individuals can for example be contract managers who know more about the agreements made between the project partners.

3.2.2 The reflection team

In the Bouwreflectie concept the reflection process is conduct by a team of two persons called the reflection team. This team consists of one individual from the clients' side and one from the contractors' side of the project. This section discusses the tasks a reflector must fulfil and the criteria he must have.

Tasks of the reflection team

The most important task of the reflection team is observation of the partnership between client and contractor and reflecting back to the project managers what they observe as possible issues.

A reflector only helps with finding the problems by observing and reflecting. It is not his task to help with the development of solutions. This is an aspect where both project managers have to work together to find a solution. The reflection team only facilitates in this process. Helping with finding solutions is a form of coaching or advising and is different from reflection where the reflector holds a mirror on the situation between project managers.

To make sure that both client and contractor can speak freely with the reflection team about the project, the reflectors sign a declaration of confidentiality. This can create extra willingness from the project managers to speak freely about certain issues during the project. This willingness is important to let reflection be effective. It is important that the reflectors explain to the project partners that they are not there to inspect but to help them improve their collaboration process.

The task of a reflector is only to observe, ask questions and reflect its findings. Giving solutions to problems related to the content is not one of its tasks. However, the Bouwreflectie foundation also describes the usage of team building sessions, Belbin team role test, expectation inventories and personal coaching as tools to be used in reflection.

Criteria of a reflector

According to the Bouwreflectie foundation, the task of the reflectors on an infrastructural project cannot be conducted by just anybody. To assure good reflectors, they are selected by the Bouwreflectie foundation. A reflector in an infrastructural project needs to possess several characteristics to execute his work properly. These characteristics are derived from an interview with the reflectors and Bouwreflectie founder. The characteristics are presented in Table 3.1 and are elaborated below.

Table 3.1 - Reflector characteristics

•   Independency
•   act as a team
•   Listening and communication skills
•   Experienced in project management
•   Poses of authority
•   Middle aged

Independency

The most important characteristic of a reflector is that he or she is independent. Being independent in this context means that both reflectors do not have any close relationship

with the project. This means that besides being reflector on the project they do not have any other interests in the project. A reflector must be able to look with an independent view on the project to be able to give a satisfying advice for both involved parties.

The formation of the reflector team, one individual from both client and contractor, assures an independent relation between the reflection team and the client and contractor. An independent relation is essential for the process of observing and reflecting on the process between the client and contractor. To assure the reflector stays objective, a reflector will never operate alone but always acts in a team with a reflector from the counterparty.

Act as a team

As stated above, reflection happens in a team of two reflectors, one of clients' side and one of the contractors' side of the project. Having a reflector team with two reflectors has another advantage next to being objective. Having two reflectors also assures that there are always two individuals that observe the process. Two reflectors can observe more than one.

Listening and communication skills

To fulfil the tasks of a reflector one needs to have strong listening and communication skills. In order to observe the aspects of collaboration, communication, behaviour and attitude in the reflection sessions the reflector should be able to listen carefully to the project partners to find aspects that can influence the collaboration between the partners. These observations should then be communicated back to the project managers in such a way that they will accept this message and start thinking on possible solutions.

Experienced in project management

A lot of the problems that arise during a project often have occurred in previous projects. Having experience in project management in the construction sector is therefore a requirement for reflectors so that they can spot issues and problems faster. Experience on how agreements are arranged in contracts is also important to help the project partners with conflicts on that aspect.

Authority

Experience in both the construction sector as well as with process characteristics has another advantage. It can lead to more authority. Authority can originate through experience or can be a capacity one has, called natural authority. Authority can also be created by the position one occupies in the organization.

Authority in this context means that the project managers of both client and contractor listen to the remarks and observations made by the reflector. When the reflector has authority, the project managers will more quickly accept his observations.

Middle aged

The Bouwreflectie foundation has setup another criterion for a reflector. Being a reflector in the Bouwreflectie method one may not be too old. This criterion is setup to assure that a reflector can use its gained experience for future projects where he has the role of project manager. This results in more experienced project managers and with that less problems on the projects.

3.2.3 Bouwreflectie foundation

The Bouwreflectie foundation assures the quality of the reflectors. The reflectors are selected and trained by the foundation. This training consists of three sessions of five hours

in which the reflectors are trained on how to observe issues in the project process and how to reflect these issues back to the project managers.

A reflector also reports to the Bouwreflectie foundation after each session. The Bouwreflectie foundation archives any specific findings of each project. To assure the project organizations are satisfied with the process of reflection, these findings are communicated with the project organizations every six months.

3.3 The process stages of Bouwreflectie

The Bouwreflectie concept consists of three following stages and an extra stage to gather additional information about the partnership process which can be used as input for the third stage. The whole process with the involved parties per stage can be found in Figure 3.4.

The three following stages are the project start-up stage, the intake session and the reflection stage. In the start-up phase a good start of the project is ensured. After the project start-up a first session with both project managers is arranged to explain the intention of the reflection sessions and exchange the expectations the project managers have. During stage three, the reflection stage, the actual reflection takes place. This stage is repeated every 4 to 6 weeks until the project is finished. In the following sections all four stages are described in more detail.
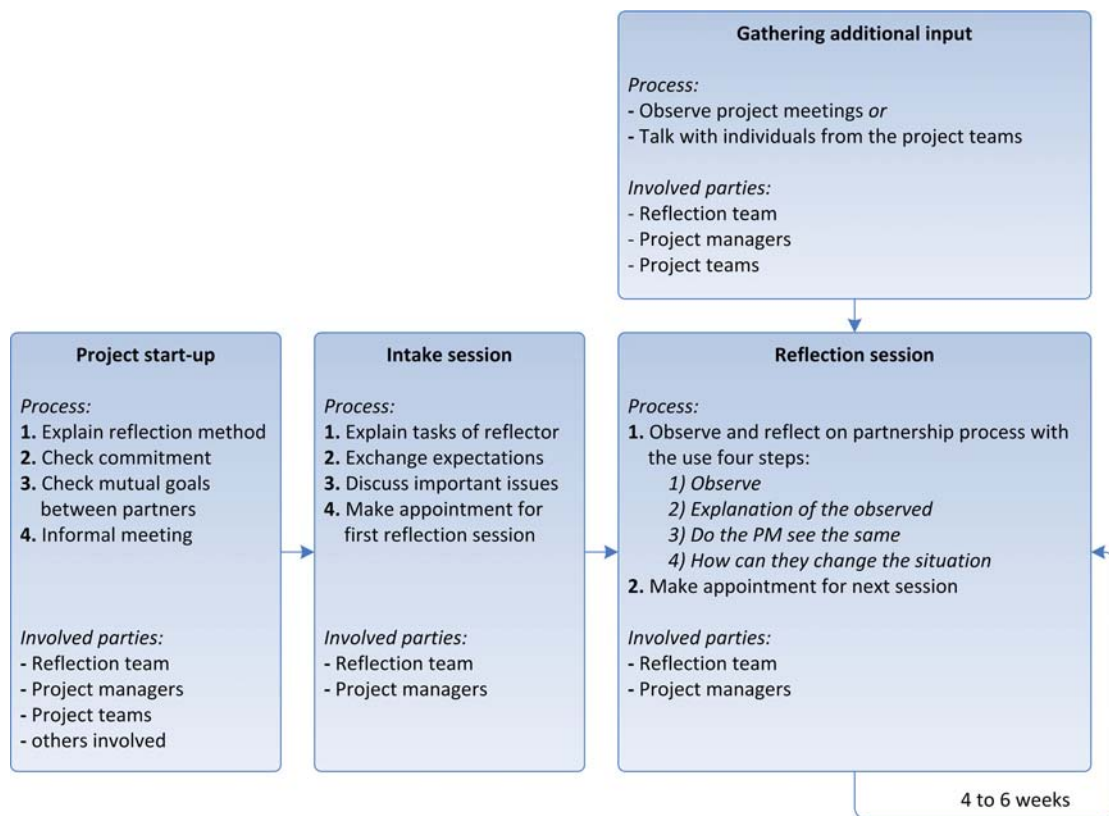

Figure 3.4 - Stages of Bouwreflectie (adapted from Bouwreflectie interviews)

3.3.1 Stage 1: Project start-up stage

The first stage of Bouwreflectie is the project start-up stage. The start-up stage is very important because it lays the foundation for the success or failure of a project (Onna & Koning, 2007).

The reflection team joins the project in the last part of the project start-up phase. During a session they will make the project teams of both client and contractor familiar with the Bouwreflectie method and they probe the commitment for the method in the group. It is important that the project managers of both client and contractor are willing and committed to the reflection method in order to let reflection work. This commitment can be created by communicating on the common goals of the project and explaining why it can be important to focus on the factors of collaboration, communication, behaviour and attitude.

During this start-up phase session the reflection team observes if the mutual goals, interests and expectations are communicated between the project managers and if agreements on collaboration during the project are made. In project management methodologies extensive attention is given to the agreements made in the project start-up phase (Onna & Koning, 2007). However, often project management methodologies are only partially used and thus should reflectors check whether these agreements are made

After the formal part of project start-up phase an informal meeting should be arranged. An informal meeting bonds both client and contractor together and can take away boundaries between members and with that improves the partnership.

3.3.2 Stage 2: Intake session

The first session after the project start up is an intake session. During this intake session the idea of reflection is explained once more to the project managers of both client and contractor. This session is separated from the first stage (Section 3.3.1) as these steps have to be conducted just prior to the first reflection session. It has to be clear for the project managers, what is and what is not included in the tasks of the reflectors. These tasks are described in section 3.2.2. By making this clear from the start the project managers know in what way the reflectors can help them. Emphasizing on the common goal of the project managers is a good start to create awareness to the project managers on the topic of improving the collaboration process.

Bouwreflectie is all about letting the project managers themselves think on how to improve the process of the project, the reflectors ask the project managers what their expectations of reflection are and what are subjects they want to talk about during the reflection sessions. These subject can for example be derived from previous projects. These subjects are used as input for the reflection sessions in stage three. Because not all important issues may rise, there is also a possibility for the reflectors to gather additional information from the project team. For more information on how this is done, one is referred to Section 3.3.4.

3.3.3 Stage 3: Reflection session

The reflection session is a session in which project managers of both client and contractor talk about the partnership process. This session has a lot of similarities with reflection-on-action of Schon (1983) as described in Section 2.2.3. This session is repeated during the development and completion stage of a project. A reflection session takes place every 4 to 6 weeks. Planning the reflection sessions in advance is in line with the literature, where planning a reflective session is seen as important (Robertson, 2005). However, this time span may be shortened or extended due to changes that occur during the project.

The time span of 4 to 6 weeks between sessions assures that issues in collaboration become more visible for a reflector. This means that due to the time issues that happen during the process can form into something that can be made explicit and can therefore be observed better. It can be compared with looking in the mirror. When looking everyday one sees no changes. If however one looks in the mirror only once a month changes become more visible and an action to change certain aspects can be taken. If one waits to long with looking in the

mirror, the changes can have become so large that it becomes difficult to change aspects. This latter is the reason that not too much time should be taken between the reflective sessions.

Each session is in fact a discussion on the process of the project, focused on the collaboration, communication, behaviour and attitude between both parties. During this discussion a reflector uses four steps to observe issues in collaboration. First the reflector observes (1) and translates this into an explanation to the project partners (2), then he asks the project managers if they see the same thing happening (3) and if so, how they want to change the situation (4). This is depicted in Figure 3.5.
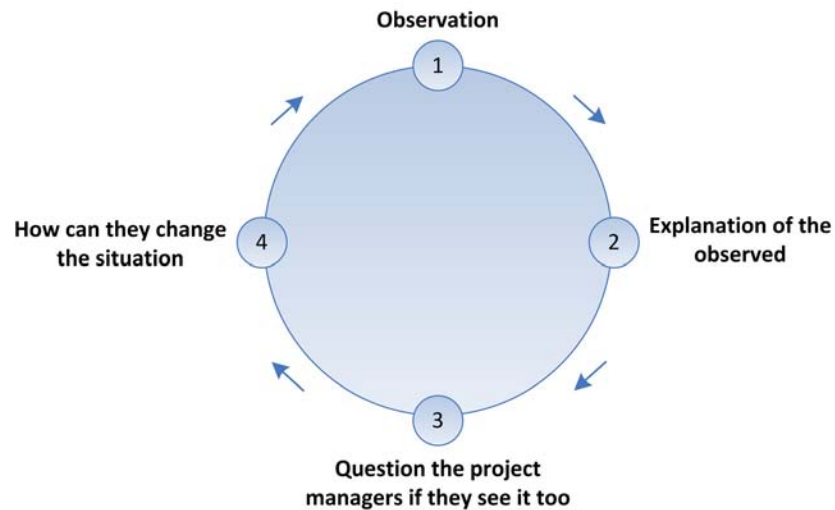
Figure 3.5 - Four reflection process steps (adapted from Bouwreflectie interviews)

The four steps are repeated each time a reflector observes an issue that can have influence on the process.

A reflective session ends with making an appointment for the next session and a short evaluation on the matters just discussed. Making an appointment right away is important to assure the project managers stay aware of reflection.

Step 1: Observation

During the observation step the reflectors observe the project managers for negative or positive signs in the project. Problems in the project can e.g. occur due to lack of communication or lack of trust. These are often not issues a project manager would directly tell in a reflection session. This can be due to various reasons as they do not see the problem themselves, or because the project managers do not like talking about problems.

A reflector can only find these issues by observing and asking questions. A list of attention points can help the reflector team in finding issues that are not directly visible. These are presented in Table 3.2.

Table 3.2 – Attention points to observe issues in collaboration

• Atmosphere of the session
• Verbal and non-verbal communication
• Returning subjects in the conversation
• Conflict handling between partners

The atmosphere can also give information on how the process of the project is going. A tense atmosphere may be the result of an issue between the partners. This often results in some negative behaviour towards each other. When a lot of humour is involved this may be because the process goes as planned. However, another explanation is that both parties are avoiding their problems. These indications can be strengthened by giving attention to verbal- but also non-verbal communication. It is the task of the reflector to ask questions to find out what is really going on here.

Returning subjects in the session might be an indication that the issue is an important factor for one or both parties but that finding a solution is difficult. If these subjects keep on returning in the following sessions they should receive even more attention.

The way both managers are coping with conflicts is also one of the important aspects to observe during a session and should be given close attention. If the conflict handling style is very aggressive this can lead to loss of commitment and trust. Commitment and trust are important aspects of a strong relationship and thus attention should be given to the conflict handling style (Mohr and Spekman, 1994).

While focusing on the point of attention as summarized in Table 3.2, a reflector should use open questions to gather more information on the subject. Accordingly a good image of the situation can be formed. Making use of closed questions a reflector can determine if the made observation is correct.

A reflector can also ask the project managers to elaborate more on certain aspects to be able to form a good image of a possible issue.

Step 2: Explanation of the observed

When a reflector has observed a possible issue he can intervene in the conversation and explain to the project managers what he has observed. It is important that the reflector does not provide solutions for the observations he made. Reflecting in the Bouwreflectie concept is holding a mirror for the project managers so they see the problems and try to find solutions themselves.

Step 3: Question the project managers if they see it too

After the reflector has explained his observations to the project managers, the question rises if they also see the issue the reflector in the same way the reflector sees it. If so, they have to question whether it is a problem in their collaboration.

If the observed is not a problem for both project managers no interference is necessary. However when the observed, whether also seen by the project managers or not, is a problem for one or both project managers, a solution to that problem has to be found.

Step 4: How can the situation be changed

When the project managers are convinced that something has to be changed, the question rises how the situation can be changed. This is the point in the process where the reflector has to be careful not to give advice. It are the project managers who have to find a solution for the problem themselves. Nevertheless, a reflector can facilitate with some minor issues as long as he is aware that he is not placed in the role of coach or advisor.

3.3.4 Gathering additional input for the reflection sessions

During each reflection session, a discussion on the project is facilitated. Negative and positive aspects on collaboration, communication, behaviour and attitude during the project process are discussed. The input for these sessions is given by the project managers

themselves. However, sometimes there is lack of information for the reflectors or a reflector senses that the project managers do not give all information. One option to obtain more information on issues that rise during the project is by gathering information via other sources. One of the ways of gathering additional information is by attending project meetings. The reflection team only observes at such a meeting and pays attention to issues that can negatively affect the process between client and contractor. These observations can then be used as input for the reflection sessions.

Furthermore, the reflection team can speak with individual project team members on the project. These individual conversations may give extra insights in the way a project is managed. If the reflector team speaks with individuals from one side of the project, either client or contractor, it is important also to speak with individuals from the other side. This prevents that one of the parties feels neglected. Eventually, it is the task of the reflection team to help both parties in the project.

3.4 Context of Bouwreflectie

Not all projects are suitable for the Bouwreflectie concept. This section describes the project characteristics and preconditions under which Bouwreflectie will work effectively.

3.4.1 Project characteristics needed for reflection

During interviews with the Bouwreflectie foundation and the reflection training two characteristics came up that have influence on the suitability of an infrastructural project for reflection: Duration and complexity.

Duration

Reflection makes use of iterations with an interval of four to six weeks. The interval between sessions has to be this long to make sure that the project managers have issues they can discuss. When less time is placed between the iterations the reflector will have difficulties observing any changes in the process since the last iteration.

Projects that have a large duration have the possibility to conduct multiple reflection iterations. According to the Bouwreflectie foundation a reflector will gain knowledge on the project with each reflection iteration of the project. This knowledge can be used in later iterations so issues can be spotted earlier and conflicts can be avoided.

Although reflection focuses projects on with a long duration, the Bouwreflectie foundation also states that projects with a short timeframe can make use of reflection. The reflection interval will have to remain at four weeks to let issues be observable. This means that in a project with a short duration, less iterations can be completed. Each iteration is independent from another and can thus create added value to the project success. However, the question that rises is whether reflection in small projects can create enough added value to gain benefit.

Complexity

The complexity of a project is another important factor in the choice to use reflection. When a project is not that complex, fewer misunderstandings will originate. This means a project manager will have less problems with keeping the project in control and the added value of reflection will decrease.

Several projects have more than two parties involved in the process of implementation. For the project manager in such projects it is extremely difficult to have clear communication to all parties. It is also less clear how the responsibilities are divided. When a project has

multiple parties involved this means that more relationships are present and that reflection, with its focus on collaboration, can help improving the project success.

According to the Bouwreflectie foundation a project does not have to be complex in order for reflection to work. However, they state that the added value of reflection in complex projects is higher than in projects with less complexity because complex project often come with more problems.

3.4.2 Precondition for reflection

A precondition for reflection to be effective is commitment and willingness from the project managers. The commitment from the client and contractor towards the method of reflection is one of the most important criteria for Bouwreflectie to work. When one or both parties are not committed to the use of reflection they won't be open minded in the process of reflection. In order to start the reflection sessions, project managers should feel willing.

To create commitment towards the reflection method it should be perfectly clear to the project managers what reflection is, but also what it is not included in the reflection process. This is explained in the project start-up and intake sessions as described in Sections 3.3.1 and 3.3.2. When a participant involved cannot fully commit itself towards reflection, one should not start using reflection.

3.5 Chapter conclusion

This chapter presents the Bouwreflectie method used in the infrastructural and construction sector that uses reflection to improve the project success. It has a strong relation with reflection as presented in the literature (Section 2.2) and consists of reflection sessions in which the project managers reflect on the collaboration, communication, behaviour and attitude of the project managers in the project. To make sure the environment for reflection is safe and the participants are willing and committed the method describes activities that are conducted before the reflection sessions. These activities take place in a project start-up and intake session.

This method together with the literature study as described in Chapter 2 can be perfectly used as a starting point to design a method for reflection on large IT projects.

4 Analysis of literature and Bouwreflectie

As a starting point for the design of a method for reflection on large IT projects an analysis is made of the literature on success and failure factors, reflection, project management methods (Chapter 2) and the Bouwreflectie concept (Chapter 3).

4.1 Introduction

To show the relevance of a method focussing on soft factors the literature on large IT projects is analyzed. It is seen (Section 2.3) that project management methods focus mostly on hard, measurable factors of a project. The softer factors receive only little attention. This is a bit strange as, according to Wateridge (1999), soft factors can be seen as important for the success of a project. This is confirmed in this study by linking the success and failure factors of large It projects to four soft aspects; collaboration, communication, behaviour and attitude also used in Bouwreflectie (Section 2.1.2). By giving these aspects more attention, several of the success and failure factors of large IT projects can be improved and the success of large IT projects will increase.

To focus on these four aspects an instrument called reflection is analyzed (Section 2.2). The literature indicates that reflection could help to look at the soft factors by analyzing the executed actions of the past. By doing so one can learn how to behave in the future. This learning effect can be used to update the mental model of the participants (Section 2.2.2).

For the design of the method two forms of reflection are presented in the literature (Section 2.2.3): reflection-in-action and reflection-on-action. Reflection-in-action is conducted during the action and is conducted alone. As one does conduct this type alone and during the action one can for a certain decision spontaneously. Therefore, this type of reflection is difficult to capture in a method. However, reflection-on-action can take place in sessions after the action has taken place and the participants can be helped by a facilitator. This form of reflection is more suitable for the design of a method for large IT projects. It also has a higher learning effect as it uses double loop learning. Furthermore, as the focus of this study is placed on the relationship between project partners, group reflection described in reflection-on-action can be useful as both client and contractor can help each other to reflect on their actions. Therefore, reflection-on-action should be used for the design of the method.

As multiple parties can be involved for the reflection on large IT projects Section 4.2 analyzes which parties should be involved in the method according to the literature and Bouwreflectie method. Furthermore, the process of the method using reflection-on-action is analyzed in Section 4.3. Both lead to the setup of the design specifications in Section 4.4 which are used as basis for the design of the method described in Chapter 5.

4.2   Involved parties

This section analyzes the parties for whom the method of reflection on large IT projects is useful. Furthermore, the characteristics these parties need to have to be able to use the reflection method effectively are discussed.

According to the literature, reflecting in a group has a positive effect on the result of reflection (Section 2.2.3). By reflecting in a group, participants can see the actions from different perspectives as all participants can have different opinions. Another advantage of group reflection over individual reflection is that the participants can stimulate and motivate each other. By conducting reflection with others, new thoughts are brought into the minds of the participants. Therefore, reflection in large IT projects can take place with multiple individuals. However, to maximize the efficiency of reflection, only participants that have a large influence on the project should be involved. In Bouwreflectie these are the project managers of both client and contractor. As the project managers are the ones who have a day to day interaction with each other, they will have a great influence on the project itself. Therefore, they are the ones who can reflect on the total project to increase the success. This setup is also used for reflection on IT projects. For each situation happing in the project, both project managers should discuss how their collaboration, communication, attitude and behaviour in that situation is and what actions can be taken to improve the situation for the future.

As described in Section 2.2, reflection can be conducted with the help of a facilitator. According to the literature having a facilitator can increase the effectiveness of reflection. Boud et al. (1985) states that a facilitator does not only facilitates the sessions but he can also draw out events that at first might have gone unnoticed. A facilitator can help with the process of finding blind spots by systematically ask questions to the reflected persons. Hereby the facilitator is stimulating the learning process. These aspects can be of use when reflecting in large IT projects and should be taken into account in the design. A facilitator role is also present in the Bouwreflectie method where the role is called the reflector. The reflector helps the participants by observing and discussing situations in the project with the project managers. As both the literature and Bouwreflectie show that a facilitator is important, the use of a facilitator is a requirement for the design of the reflection method for large IT projects. From here on the role of the facilitator is called the reflector.

As stated above it is seen that the project managers and the reflector should be involved in reflection. However, from the Bouwreflectie method another party is stated as important. In Bouwreflectie, the project team members help with gathering of additional information on the project. This role can also be of importance in the reflection method for large IT projects as it is important that the reflector has enough information to help the project managers to reflect.

According to experts within KPMG a fourth role is important when reflection is used in practice. This is the top management of the project, consisting of both client and contractor.

Below, the roles of top management, the project manager, reflector and project team members are further analyzed.

4.2.1   Top management

Top management is important to involve as they are the ones that have to decide whether to use reflection in their projects. As reflection is a process between the client and contractor, the top management of both project partners should support the use of reflection. Without support from the top management reflection cannot even start. Using reflection will cost extra time and money on a project. Furthermore, top management can

help to create willingness at the project managers by explaining why reflection is useful. Therefore, integrating top management in the process of reflection is important for the design of the method.

4.2.2 Project managers

Having project managers of both client and contractor reflecting together has the advantaged that they have a good overview of the project and a day to day relationship. Therefore, they are able to steer the project when they want to. Having regular discussions on the collaboration, communication, behaviour and attitude with both project managers can have a positive influence on the project, and with that increase the success.

A disadvantage of letting two project managers from two sides of the project reflect together is that in reflection the participants have to trust each other (Brenninkmeijer et al., 2005). Reflection must be seen as a group process and not as an individual process in which the participants can blame each other of mistakes they have made. Otherwise the project managers will lose their trust in each other. Hence, it is important that the goal of reflection is explained to the participants.

In the Bouwreflectie method it is indicated in Section 3.3.1, that project managers need to be willing to reflect. In the literature, this willingness is seen also an important characteristic for a participant (Section 2.2.4). In the literature (Brenninkmeijer et al., 2005) also describes that a participant must believe in the added value of reflection. This is linked to the willingness of project managers. According to Bouwreflectie checking and creating willingness to reflect should be taken into account. One must assure that this is conducted in the beginning of the project. A project should not already be escalated when one wants to reflect as this leads to distrust and loss of the safe environment (Lee and Kim, 1999). Therefore, for the design of the method it should be taken into consideration that reflection starts from the beginning and that the project managers trust each other and are willing to reflect.

4.2.3 Reflector

As stated before the role of the reflector is important to increase the effectiveness of reflection. Below the role of the reflector is analyzed more thoroughly. This is done by discussing the formation of the reflector role, the characteristics of reflection and the tasks a reflector should have.

Formation of the reflector role

In the Bouwreflectie concept the role of the reflector is formed by using a team of two reflectors. These two reflectors are two project managers, one from both organizations. These roles are filled in by project managers of other projects that do not have a direct relationship with the project in order to make sure they are not biased. Because there is one reflector present from both organizations, they can (and have to) work together as one independent team. The advantage of two reflectors is that two can observe more than one. However two different views of the situation can also make it more complex.

It can be questioned whether this option of two reflectors will work in a method for large IT projects as from a financial point of view two reflectors are not beneficial. Especially as it is difficult to measure the added value, top management does not want to spend much money. However, when one external reflector is chosen this aspect is removed. For the design of the method the use of a single should also be investigated.

Characteristics of a reflector

The reflector is important when helping both project managers to learn from their actions. In the literature the reflector is presented as someone who facilitates the project managers in their learning process. According to the literature (Section 2.2.3) a reflector needs to be independent and has strong listening skills.

The Bouwreflectie method also sees the reflector as independent and with good listening skills. However, the Bouwreflectie method also describes that a reflector should have authority to assure that the project managers listen to his observations. By having experience with project management of IT projects the reflector will more easily know where things can go wrong.

In the Bouwreflectie method it is also stated that the reflector should be middle aged (Section 3.2.2) so that the lessons he learns during reflection can be used for future projects. In spite of the learning aspect, it can be questioned whether this criterion is important for the reflection process itself. It does not add extra value to the learning aspect of the project managers. Therefore, it is not taken into account as a requirement for the designed method.

The criteria of independency, strong listening skills, experience and authority are taken into account for the design because it is thought that these aspects are of importance in the reflection process and can help the reflector in facilitating the reflection sessions.

Tasks of a reflector

In the literature several tasks of a reflector are presented (Section 2.2.3). These tasks are taken into account for the design of the method. The main task of the reflector is to facilitate the reflection session and thinking process of the project managers. By asking open and challenging questions the reflector can search for situations that need further analysis. By keep on asking questions these can be analysed. To make sure the exact situations are analysed and to stay objective the reflector should not offer its own interpretations. By giving support and encouragement the reflector can motivate the project managers in their reflection process. Furthermore, providing tools can help to improve the situation. In the Bouwreflectie method expectations inventories and personal coaching are described as tools to be used in reflection. Each of these tasks can be helpful during reflection and are therefore taken into account in the design.

The Bouwreflectie method has an extra task the reflector has to conduct. This is the gathering of additional information from the project meetings and team members. This information can be used by the reflector to better analyze the situations presented by the project managers. Therefore, this step can be interesting to be used for the design of the method for large IT projects.

Training

To make better observations, the Bouwreflectie method also provides training for the reflectors. During this training the reflectors are trained on how to observe issues in the project and how to reflect these issues back to the project managers. As the role of the reflector has several similarities with the role of a mediator or a coach, these trainings should consist of such subjects. Having training will improve the effectiveness of the observations made by the reflectors and with that the effectiveness of reflection. Therefore, it should be taken into account for the design of the method.

4.2.4 Project team members

In the Bouwreflectie method the project team members are also involved in reflection (Section 3.3.4). The project team members are directly communicating to the project managers. This way the project managers gain a lot of information about the process of the project. However, this information does not always reaches the reflector. Therefore, the Bouwreflectie method provides an extra link between the reflector and the project team members to observe and gather additional information about the project. This gathering of additional information is analyzed more thoroughly in Section 4.3.3.

4.3   Process of IT reflection

As indicated before, reflection-on-action is used for the design of the method. In reflection-on-action the project managers can reflect on former actions during arranged reflection sessions. As the development stage of large IT projects is the stage in which most communication between client and contractor is needed on a day to day basis, the main actions on which can be reflected occur during this stage. Having interaction between client and contractor can be influenced positively or negatively by the four aspects of collaboration, communication, behaviour and attitude. When the project managers show respect towards each other and trust each other on the decisions they make, their attitude and behaviour towards each other is improved and with that their collaboration enhances.

However, when the client and contractor are not helping each other during the development of the project, various problems can arise. An example is when the client or contractor does not stick to agreements made. This can lead to situations that are unclear to both parties, which can result in irritations as expectations differ. Eventually this may lead to a conflict. To assure these conflicts are prevented, one can use regular evaluation sessions during the development of the project. Therefore, the reflection sessions will have the largest impact during the development stage.

According to both the literature (section 2.2.4) and Bouwreflectie (Section 3.3) preparation is needed for reflection to be effective. During the preparation a strong relationship for the rest of the project is build. It also improves the attitude of project managers as trust will improve. These reasons make that preparation before the reflection takes place is essential. Below a more thorough analysis of the preparation for reflection is given. Furthermore, the reflection sessions itself and the gathering of additional information are discussed.

4.3.1 Preparation for the reflection session

According to Bouwreflectie preparing for the reflection sessions at the beginning of the project will improve the behaviour towards each other during the project. Also stronger communication is possible as both parties respect each other.

From the analysis of the involved parties it is seen that willingness to reflect and trust between the project managers should be created. These two aspects should be conducted during the preparation for reflection. Therefore, these aspects should be taken into account in the design of the method.

To improve the collaboration in the project at the start, it is seen in Section 2.1.2 that one can discuss mutual and contrasting goals. By aligning mutual goals both project managers know what their common goal is. By discussing the contrasting goals, the project managers can have a better idea of the motives for the attitude or behaviour of their counterpart. Both project managers have to be open towards each other when they share their contrasting goals. Being open sends a message of trust. This is an important aspect as thrust improves the collaboration, but also makes sure a safe environment for reflection is present. In Bouwreflectie only the alignment of the mutual goals is presented. For the IT reflection

method, being open and respecting each others goals can improve the attitude and behaviour in the project. Hence, focussing on the common and contrasting goals should be taken into account in the design of the method.

Before the first reflection session takes place it is important that the involved parties in reflection know what to expect from the reflector. According to Bouwreflectie it is important that the project managers know what the tasks of the reflector are to assure that they know what to expect. When they understand the tasks of the reflector, the project managers can become more willingly to reflect. It also assures that no misunderstandings about the tasks of the reflectors arise.

Another step of Bouwreflectie that can be useful in the reflection method for large IT projects is exchanging the expectations of reflection. This should be conducted by the project managers and reflector and assures that both project managers and the reflector have the same view about what reflection is about. Again it assures that no misinterpretations about reflection arise.

In the literature (Section 2.2.4) discussions about some of the points of attention that project managers already had is seen as important. The project managers have to negotiate an area for consideration. This can also mean that project mangers provide some attention points that they found important in previous projects. This assures that points of attention that are found important by the project managers can be discussed at the beginning of the first reflection session. This step is also present in the Bouwreflectie method and should also be a requirement for the design of the IT reflection method.

4.3.2 Reflection session

It is seen in the literature (Section 2.3) that reflection is not yet incorporated in current project management methods. However, it is seen that evaluation of the content takes place on stage transitions. Reflection can also be conducted on these stage transitions as the project managers already evaluate the former stage of the project. However, the time between reflection sessions should not be too long as issues can build up and turn into a conflict. In the Bouwreflectie method this is assured by having the reflection sessions periodically with an interval of 4 to 6 weeks. In the literature on reflection (Section 2.2.3) it is seen that a strict agreement on the time to reflect is useful as this ensures that managers do not place action over reflection (Daudelin, 1996; Robertson, 2005). Therefore, using the time period of 4 to 6 weeks should be used in the design.

For the actions conducted during reflection both the literature and Bouwreflectie describe four steps to be used in reflection. These steps are analyzed in order to select the steps that are interesting to use in an IT reflection method.

Observation

According to the process steps described in the literature (Section 2.2.4) during the first step of reflection a situation is made explicit. To do this a situation must be selected which needs further analysis. In Bouwreflectie this is done with observations made by the reflector. During this step, Bouwreflectie describes that the reflector should ask open and challenging questions to find situations can be analyzed further.

By asking the open and challenging questions the reflector can focus on the four soft aspects of collaboration, communication, attitude and behaviour. On specific situations the reflector can ask direct questions like "how do you feel about the communication?" or "How do you think your attitude has had influence on the situation?". As the participants are challenged to think thoroughly about the answers they are busy analyzing the actions taken. By keep on

asking questions the project managers gets challenged even more on why he conducted his actions the way he did.

Next to asking questions, the Bouwreflectie method provides some extra attention points when observing the collaboration, communication, attitude and behaviour. These consist of looking at the atmosphere of the session, the use of verbal and non-verbal communication, returning subjects and conflict handling techniques. For example by observing the atmosphere of the session the attitude and behaviour of the participants can be spotted. When the reflector feels a negative atmosphere is present, it is important that he tries to find out why this is the case. Again this can be done by asking open and challenging questions. When the reflector looks at these attention points while observing, he can detect situations that need some further analysis.

However, before the situation is analysed, Bouwreflectie describes two more steps that are also interesting for reflection in IT projects. After the reflector observes and asks questions, he has to explain his findings to the project managers. This assures the image of the reflector matches with that of the project managers. This prevents misunderstandings between the reflector and project managers. This explanation can be for example that he sees that during the process only little communication is conducted what led to misunderstandings.

After the reflector has explained what he observed he asks the project managers if they see it too. With this step the Reflector checks whether the situation he has observed is seen as a problem by the project managers. When it is seen a problem by one or both project managers, they go to step four of Bouwreflectie and the reflector asks the project managers how they want to change the situation. However, between the questioning if they see it too and how they want to change an extra step should be placed in which the situation is carefully analyzed. This step is present in the literature of Daudelin (Section 2.2.4) and is called analysis of the situation.

Analysis

During the analysis step of Daudelin, it is described that in order to analyze the situation during reflection one has to try to make sense of it. Sensemaking of Weick (see Section 2.2.4) can be used for this analysis. Sensemaking describes that decisions are often made on experience or intuition. This can be linked to the four aspects of collaboration, communication, behaviour and attitude. When for example, project managers have different experiences in a certain situation; both can come up with a different solution. With that, misunderstandings can arise. When this is not communicated well it may result in conflicts. With Sensemaking understanding is created of the needs and expectations of the participants, and they can help each other to determine the extend of agreement of the group with their own view and vice versa by concretizing the situation. In order to concretize the situation the literature describes two forms: concept mapping and the nine questions of Korthagen (Section 2.2.4).

With concept mapping (Gray, 2007) the situation can be visualized. The concept maps try to visualize how the participants have done something and why they have done it that way. Concept maps can be created for negative as well as positive situations and are therefore suitable to use in reflection. Concept maps can be used by the project managers for negative situations to find out what happened and how it can be improved, and for positive situations how these can be repeated in the future. They can be used to visualize how the collaboration, communication, behaviour and attitude of the involved persons is in the given situation. The nine questions of Korthagen (2003) can also be used to concretize the situation. With the nine questions the participants can find out if their interpretation of the feelings and thoughts of each other are correct. These questions are about what the

participant and others in the situation want, feel, think and do. Both concept mapping as well as the nine questions can be used as tools during the analysis step to concretize the situation so that these can be analyzed by the project managers.

Formulate changes

After the analysis, the literature describes that changes and improvements should be formulated. This step is important as alternatives are formulated so the project managers do not just choose the first option that comes into mind (Daudelin, 1996). This is also seen in the Bouwreflectie method where the reflector asks the project managers how they want to change the situation. This step should be taken into consideration for the design of the method.

Change acting

Finally, the literature has added an extra step in which the decision to change is taken. When it is thought that a lot of effort has to be taken for only little improvement, the project managers can decide not to change. This step can also be important as it weighs the positive and negative aspects for change.

As was stated in the literature by Groen (2008), the reflection sessions should not only focus on situations that have gone wrong but also on positive situations that happened during the project. By giving attention to the positive situations in a project, these situations can be used as reference points for improvement and avoid that one falls into a negative spiral. Hence, a method for reflection on large IT development projects should focus on both negative as well as positive situations that happen during the project.

As described by Daudelin (1996) in Section 2.2.4, making an appointment for the next reflection session at the end of the current session is important in order for the project managers to keep on emphasizing on reflection. For the design of the reflection method this should also be taken into account.

From expert opinions derived at KPMG, a review of the previous period (between the last reflection session and the current one) can be a useful start of the reflection sessions because then it can be seen whether agreements made in the last reflection session are kept by the project managers. They also state that evaluations at the end of each reflection session can be useful to assure that everybody feels satisfied and misunderstandings between the involved parties are prevented. As one of the goals of the reflection method is to prevent misunderstandings this step is a useful addition and should be taken into account in the method.

4.3.3 Gathering additional information

In the Bouwreflectie method a step is added which contains of the gathering of additional information about the project. With this step a reflector can learn more about the situations that happen during the project. In Bouwreflectie this is done by observing during project meetings or speaking with some of the project members during their day to day activities. For the method of reflection in large IT projects this can be a convenient step to let the reflector learn more about the project. When the reflector has knowledge about the things that happen in the project he is able to help the project managers better.

4.4 Design specifications

During the analysis of both literature and Bouwreflectie in the section above several requirements for the design of the method for large IT projects are found. These

requirements are divided into the requirements to the involved parties and the process of reflection and are summarized below.

Involved parties

Below the design specifications for the involved parties of reflection are presented.

- **Top management**

  Top management of both client and contractor should support the use of reflection.

- **Project managers**

  Reflection should take place between parties that have influence in the project so that changes can be made for future situations. It is important that the project managers trust each other and are willing and committed to reflection.

- **Reflector**

  For reflection in IT projects a reflector should be used as this increases the efficiency of the reflection sessions.

  - *Select formation of the reflector*

    A reflector should be appointed at the beginning of the project by both client and contractor.

  - *Characteristics of the reflector*

    When a reflector is selected he should have the following characteristics: independent, strong listening skills, has authority over the project managers and has experience with project management.

  - *Tasks of the reflector*

    During the reflection sessions a reflector should ask open and challenging questions, keep on asking questions, give support and encouragement and provide the project managers with tools that may help them in reflection. A reflector should bear in mind he does not give its own interpretation of the situation. He should also gather additional project information to get a better feeling of the situations discussed.

  - *Receive training*

    A reflector should receive training so that he can more easily observe the collaboration, communication, attitude and behaviour of the participants.

- **Project team members**

  By involving project team members, the reflector can gather more information about the project. With this information he might be able to help the project managers more efficiently.

Process of reflection

Below the design specifications for the process of reflection are presented. These are divided into three categories. The three categories are: the preparation for reflection, the reflection sessions and gathering of extra information and the design specifications are shown below.

- **Preparation for the reflection sessions**

  - *Top management decides to use reflection*
    At the start of a project the top management of both client and contractor have to decide to use reflection.

  - *Attend a reflector*
    During the preparation for reflection a reflector should be attended which will facilitate the reflection process.

  - *Investigate and create willingness and commitment for reflection*
    Make sure the project managers are willing to reflect and feel committed to the reflection process. Without willingness and commitment reflection will not be effective.

  - *Assure a strong relationship at the beginning of the project*
    When a strong relationship is present at the beginning of the project this may result in project managers that trust each other and stand more open towards each other. Eventually, this improves the effectiveness of reflection.

  - *Explain the tasks of the reflector*
    The tasks of the reflector should be explained so that the project managers know what to expect of the reflector.

  - *Exchange thoughts and expectations of reflection*
    By aligning the expectations of reflection misinterpretations of what reflection is and is not, is prevented.

  - *Discuss mutual and contrasting goals*
    Spending time to the alignment of goals and being open towards each others goals will improve respect and trust towards each other. This is an important aspect as it improves the collaboration, but also makes sure a more open environment for reflection is present.

  - *Discuss topics that project managers find important*
    It is important to discuss attention points (of previous projects) that are found important by the project managers. This way one assures that attention is given to prior experiences a project manager had.

- **Reflection sessions**

  - *Focus on positive as well as negative situations*
    In the design it should be noted that both negative as well as positive situations should be addressed. This assures that the project managers do not fall into a

negative spiral. Looking at positive situations also helps to see what went well and can be kept that way.

- *Review of the previous period*
  In order to reflect on situations in the project, the previous period should be reviewed at the beginning of the reflection session. During this review of the previous period it can be seen whether the project managers stick to the agreements made. Also new situations that need analysis can be found by discussing the previous period.

- *Use of reflection steps*
  During reflection a combination of steps between the literature and Bouwreflectie should be made. The first three steps of Bouwreflectie can be used well for the design of the IT reflection method as they assure that a discussion between the project managers about the project is observed. In cooperation with the project managers a situation is selected which will be analysed further. As the Bouwreflectie method lacks of a strong analysis of the situation, this step can be used from the literature in which sense is made of the situation using the tools of concept mapping and the nine questions of Korthagen.

  The two steps, described in the literature, in which alternatives are formulated and a decision to change is made should also be present to assure the reflection cycle is complete.

- *Evaluation of the session*
  Make use of an evaluation at the end of each session in order to question whether each situation is discussed and everyone is heard.

- *Use periodic reflection sessions*
  Assure that reflection takes place periodically. This assures that the focus stays on reflection rather than action alone.

- **Gathering of additional information**
  The reflector should make use of the gathering of additional information to learn more from the project itself. With that he can help the project managers more effectively.

4.5   Chapter conclusion

The goal of this chapter is to analyze the literature and Bouwreflectie to setup design specifications that can be used to design a method that is applicable and ready to be used in large IT projects. These design specifications are used to design the method which is described in Chapter 5.

Reflection-on-action is seen more applicable for the design of a method than reflection-in-action. Therefore, reflection sessions can be used to let the project manager reflect on their project. During these reflection sessions project managers of both client and contractor should reflect together. To assure effective reflection, preparation is needed for the sessions. Especially, the willingness of project managers seems important.

This preparation should be conducted with all involved parties which are: top management, project managers, project team members and the reflector. During reflection a facilitator should help to let the project managers look back on the actions conducted. He should be able to gather additional information on the project to get a good view of the situation.

5 Design of the IT reflection method

This section describes the design of the method for reflection on large IT projects. This design is based upon the analysis of the literature and Bouwreflectie method as described in Chapter 4. In the analysis it is seen that for the design of the method two main aspects are important which are: the involved parties and the process of the method. In Section 5.1 the design of the involved parties will be presented. Section 5.2 continues with the design of the process of the method.

The final design can be found in a separate document named: "Reflection manual: A method for project success focussing on soft factors"(Perk, 2009). In that document the findings derived from the empirical research, presented in Chapter 6 are already processed.

5.1 Involved parties

From the analysis four involved parties are derived. These are project managers, the reflector and the project team members who are depicted in Figure 5.1 and the tasks of each of them are described below.
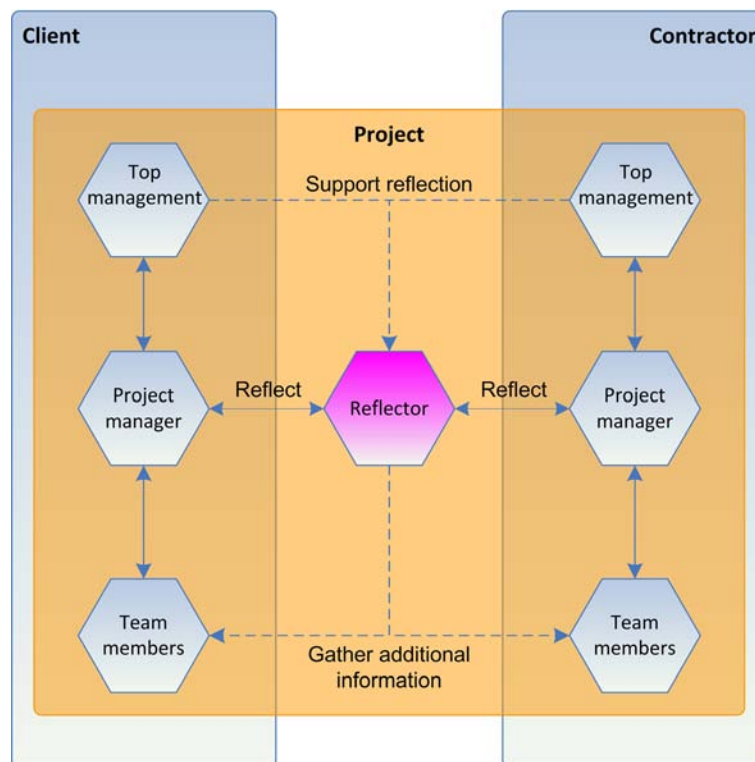

Figure 5.1 - Involved parties and relations in reflection on large IT projects

5.1.1 Top management

For top management the effectiveness of reflection is important. They want to see that using reflection has added value over not using it. However, because this method gives attention to the soft factors in a project, it is difficult to measure the effectiveness. However this added value can be shown by giving examples of previous or currently running projects which are using reflection.

When top management is convinced of the use of reflection and the decision is taken to use reflection on the project, top management should decide what formation of the reflector role is needed. Also top management must help in creating willingness of the project managers at the beginning of the project. All these aspects are explained further in the Section 5.2.1

5.1.2 Project managers

In the analysis it is seen that the project managers are the ones in Bouwreflectie who are actually conducting the reflection. For the design of the method for IT projects again this setup is chosen as they can have influence in the project to improve the success. The project managers of both client and contractor will reflect together on the collaboration, communication, behaviour and attitude of the individuals in the project. This is done by discussing the project on the aspects of content and process. The reflector will focus mostly on the process and relational aspect and help the project managers to also look at the soft factors affecting their relationship.

As seen in the analysis, for reflection to be effective, the project managers have to be willing to reflect and committed to reflection as they are the ones actually reflecting. In the design of the method this investigation of the willingness is conducted during the project start-up session (discussed in Section 5.2.1). This willingness is created by the reflector and top management who explain the idea of reflection and discuss the advantages of reflection for the project but also for the project managers itself. This can be for example an improved working relationship with the counterpart which leads to a more pleasant work environment. If project managers trust each other at the beginning of the project this improves the collaboration during the project. Therefore the relationship is investigated at the beginning of the project.

5.1.3 Reflector

From analyzing the role of the reflector it is seen that a reflector is of importance in increasing the effectiveness of the reflection. Therefore, the reflector is used in the design of the method. Below the design of the role of the reflector is presented. This consists of the formation, characteristics, tasks and training of the reflector.

Formation of the reflector role

During the analysis, it is seen that the form of the reflector role as used in Bouwreflectie (with two reflectors, one from each organization) may not be always useable. Therefore, in the design of a method for reflection in large IT projects, a second option for the role of the reflector is taken into consideration. Both roles are presented in Figure 5.2.

The second option is to hire one external reflector. The positive aspect of this option is the financial benefit of using one reflector as one reflector will cost less than two. However, a disadvantage of an external reflector is that he cannot have any close relationship with the project at forehand in order to assure its independency. Therefore, he has no close relationship with both companies. This can result in a formal relationship between the reflector and project managers which can result in the fact that the project managers feel

monitored instead of helped during their learning process. As both literature and Bouwreflectie concept gave no real point of view on these aspects, both options are presented to the interviewees as discussed in Chapter 6.
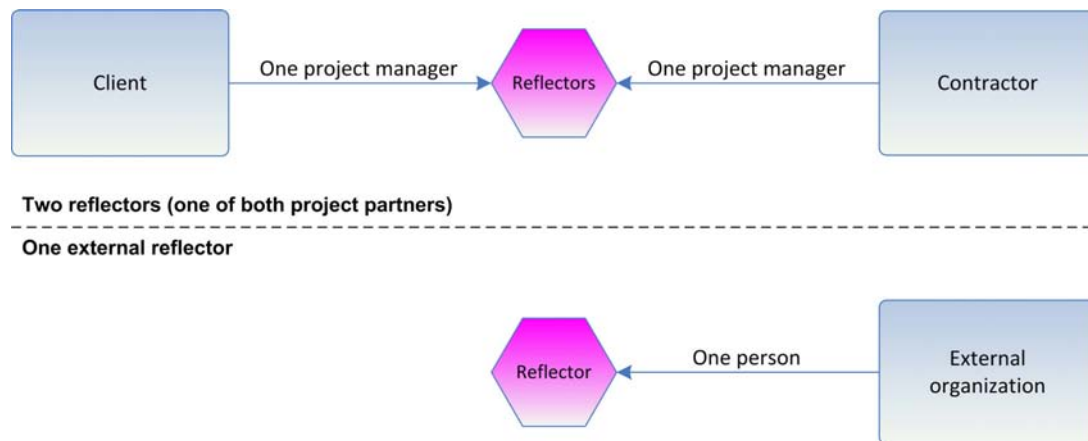
Figure 5.2 - Two different formations of the reflector role

Characteristics of a reflector

To come to the characteristics a reflector should have, the characteristics as found in the analysis (see Section 4.2.3) are used. These are:

- Independent;
- Strong listening skills;
- Authority;
- Experience with project management.

In order to have good reflectors, these characteristics are checked at the point the reflectors are installed by the top management. This is during the start-up phase and can be conducted by a small conversation between top management and the potential reflector.

Tasks of a reflector

The tasks the reflector should have are analyzed in the literature and Bouwreflectie method as described in Section 4.2.3. These are:

- Facilitate the learning process by:
    - Asking them open and challenging questions;
    - Keep on asking questions;
    - Do not offer own interpretations of the situation;
    - Giving support and encouragement;
    - Provide them with tools that may be of use;
- Gather extra information from the project members.

These tasks are used as main tasks in the design of the reflection method for large IT development projects. In order for the reflector to understand these tasks these should be communicated to him when he is selected by top management.

To improve the effectiveness of the reflectors, training of them is also taken into account in the method. This training of the reflectors should be conducted by an external organization specialized in mediator or coaching trainings and takes place in the project start-up phase. With training they learn how to pay extra attention to the various aspects of collaboration, communication, behaviour and attitude. Examples of aspects that can be taught are: analyzing the atmosphere of the session, the behaviour of the participants, style of communication and non-verbal communication. This training takes place during the project start-up session (see Section 5.2.1).

5.1.4 Project team members

During the analysis it is seen that the role of the project team members can be important when the reflector wants to gather additional information about the project. This can be the case when for example the project managers do not have a good understanding about the actions that happen in the project teams.

For the design of the method the project team members receive the role of helping when the reflector wants to gather information about the project. Gathering additional information is further described in Section 5.2.4.

5.2 Process of IT reflection

In order to design a method that can be used next to project management methods, the designed method should follow a similar process model. Despite both Prince2 and PMBoK are different project management methods, they can be placed into a staged process model. In a staged process model the project is divided in different controllable project stages which are more or less conducted after each other. Cadle and Yeates (2008) describe such a generic process model in which a project is divided into six stages: pre-project work, project start-up, development stage, completion stage, operational stage, post project review. As this research encompasses large IT development projects, this generic process can be used.
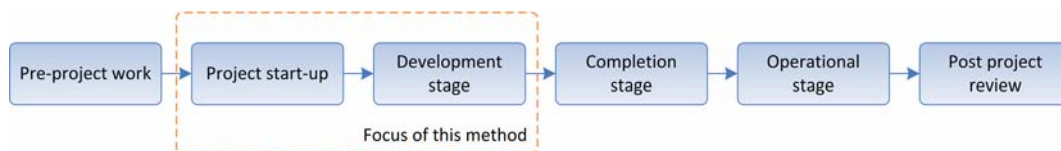
Figure 5.3 - Process model of reflection on large IT projects

According to Cadle and Yeates, extensive communication between the client and contractor has to take place. Most of this communication takes place during the start of the project (Project start-up) as agreements between both parties are made. During the development stage these agreements have to be monitored to assure the project delivers what the client has in mind. Again this results in a lot of communication. It is important that while communicating the behaviour and attitude of the project managers is correct as this has a lot of influence on the collaboration between the client and contractor. As most communication takes place during the project start-up and development stage these stages are used as a focus for the design of the method as presented in Figure 5.3.

During the analysis of the literature and Bouwreflectie method it is also seen that before the reflection sessions take place, preparation has to be conducted to assure effective reflection sessions. In the Bouwreflectie method this preparation is divided into two sessions: the project start-up session and an intake session. This formation is used as some of the steps,

like exchanging expectations of reflection have to take place just prior to the first reflection session.

Other actions, like training of the reflector, have to be conducted earlier. Therefore, these take place during the project start-up session. This formation of the reflection process is also used in the design of the reflection method for large IT projects. During the intake session it are only the project managers and the reflector that are present as in the project start-up these parties are joined by the top management and project team members.

Splitting the preparation for reflection into two phases leads to the formation of four phases. These phases are: Project start-up session (Phase A), Intake session (Phase B), Reflection session (Phase C) and the gathering of additional information (Phase D). How these steps form the process of the method is depicted in Figure 5.4. The design of each of these phases is discussed below.
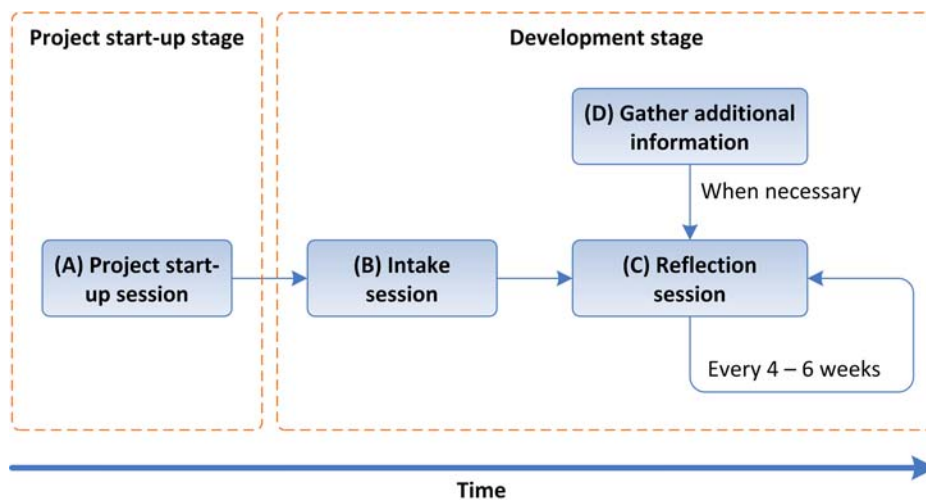
Figure 5.4 - Method overview

5.2.1   Project start-up (Phase A)

For the design of the project start-up session, the preparation steps that need to be conducted at the start of the project are taken into account. Below the project start-up is designed using the requirements as indicated in the design specifications in Section 4.4.

Top management decides to use reflection

As a first step of the project start-up session top management decides to make use of reflection. As both top management of client and contractor have to support reflection they should decide this jointly. As the added value of reflection is difficult to quantify, top management may not be easily convinced that reflection helps to increase the success of large IT projects. However, support can be created by looking at previous projects in which reflection has taken place. Also speaking with reflectors on currently running projects increases the support and lets top management decide to use reflection. They can explain how they think reflection has added value to these projects.

Attend a reflector

A reflector should be attended by the top management of both client and contractor. This decision should be made at the beginning of the project start-up as the reflector is involved during the rest of the steps of the project start-up. The formation of the reflector role is decided by top management explained in Section 5.1.3.

Investigate and create willingness and commitment for reflection

The investigation and creation of willingness and commitment in the design of the IT reflection method is encompassed in two process steps. These are a general introduction to reflection and a discussion on the willingness and commitment of reflection.

During the general introduction the reflector and top management of both client and contractor together explain the goal of reflection. By explaining to the project managers that reflection is used to improve the collaboration, communication, attitude and behaviour in the project, the project managers become willing and committed to reflection. Emphasis should be given to the fact that reflection in this context is a group process and not an individual process. Improving the actions to reach the common goal of the group should be the goal of the reflection sessions.

Discussing the willingness and commitment of reflection is the second step that helps to investigate the willingness to reflection. This discussion between the reflector, project managers and the top management can help to create an environment where reflection is seen as a useful instrument to the project managers. This is done by explaining that several factors affecting the success and failure of projects depend on the soft aspects and that it is therefore important that organizations focus on these aspects. It should also be explained clearly to the project managers that reflection improves the enjoyment in their work.

Discuss mutual and contrasting goals

In order to let reflection be effective the project managers should keep in mind that they are both working on the project to achieve certain mutual goals. It is important for the success of a project to align these goals and check if there are no misinterpretations on these goals. However, it should also be noticed by the client and contractor that contrasting goals are present. To assure strong collaboration, these contrasting goals should be communicated openly with each other. Communicating these goals and respecting each others goals creates trust. If both parties trust each other, they probably want to put energy in a strong relationship and the project.

By letting the reflector attend the meeting in which the goals are discussed, he can see what decisions are made on the field of collaboration. The reflector can also observe what the starting situation is. From here on the reflector can provide feedback to the project managers. During this discussion the reflector also helps the project managers by questioning them what their goals in the project are. Both managers can then discuss why these goals are important for them and how these can affect their behaviour.

Also discussing the way of communication in the project can improve the relationship in a project. It can be so that one of the project managers likes all communication verbal instead of via email. By discussing this at the beginning of the project this will prevent miscommunications later on. This can be conducted during the discussion on mutual and contrasting goals.

Assure a strong relationship at the beginning of the project

To assure a strong relationship at the beginning of the project, two steps are designed for the methods. These are the investigation of the relationship between all involved parties and having an informal meeting.

During the investigation of the relationships between the involved parties, the relationship between the project managers and reflectors is investigated. For the investigation of the relationship between the project managers of client and contractor, the project managers can conduct several tests to look if their personalities match with each other. This way fewer

problems should occur during the project itself. When no match can be found another project manager should be brought on the project. For this match, tests like the Belbin team role Inventory or Enneagrams can be used.

For the relationship between the reflector and the project managers a short conversation between the reflector and project managers should do.

An informal meeting can also help the project managers to create a strong relationship at the beginning of the project. During this informal meeting the project managers but also some project team members can be involved so that a strong informal relationship arises.

5.2.2 Intake session (Phase B)

The intake session is a session that also helps in the preparation to the reflection sessions. During the intake session some aspects of reflection are discussed just prior to the first reflection session. Below the requirements derived from the analysis that can be taken into account during the intake session are discussed.

Explain the tasks of the reflector

Next to the general idea of reflection that is explained during the project start-up, it is important that the reflector explains his specific tasks to the project managers. It has to be clear for the project managers, what is, and what is not included in the tasks of the reflector during the reflective sessions.

By making the tasks of the reflector clear at the start of the project, the project managers can manage their expectations of the reflectors and know in what way the reflector can help them. The project managers can also decide here whether a declaration of confidentiality is necessary.

Exchange thoughts and expectations of reflection

In order to create a good view of how the project managers see reflection as a method to improve the success of a project, the reflector asks the project managers what their expectations are and how they think that the reflection sessions can help the project managers to improve the collaboration, communication, behaviour and attitude in the project. This is important to know so that the expectations of both project managers and the reflector are in line.

Discuss topics that the project managers find important

In reflection it is important that the participants think about the subjects they want to discuss. This means that the project managers think about specific points of attention that they consider as important. These attention points can be derived from previous projects. One of these topics can for example be that one project manager thinks that it is important that there should be some room for own interpretations instead of always keeping strict to the agreements. As these can have a strong effect on the behaviour and attitude of the counterpart it is important to discuss these at the beginning of the project. These topics can serve as a starting point for the first reflection session.

5.2.3 Reflection session (Phase C)

Below the design of the reflection session is presented, in which the reflector helps the project managers to focus on the soft aspects of the project by discussing the project. During this reflection session attention should be given to the four aspects of collaboration, communication, attitude and behaviour.

Focus on positive as well as negative situations

It is important to notice that the reflector should not only focus on the negative situations that occur during the project, but also the positive situations should be highlighted. This is done by starting the reflection session with asking the project managers what aspects in the project they find positive. From these positive situations both project managers can learn what are aspects that can be used to improve negative situations. As the project managers can only discuss negative aspects, the reflector should try to let them also discuss some positive points as this can improve the atmosphere.

Review of the previous period

To assure that actions that are derived from the previous reflection session are conducted as agreed by the project managers, a review is conducted in which the agreed actions of the previous reflection session are discussed. With this analysis it can be seen whether the agreements are kept by the project managers. Together with the reflector the project managers discuss what went well and what situations should receive some more attention. When situations did not went as they should they can be analyzed further using the reflection steps described below.

Use of reflection steps

For the design of the reflection session, a combination of the reflection steps of Daudelin (1996) and Bouwreflectie are used. These steps are used to discuss situations that need to be further analyzed. Discussing these situations has a positive effect on the collaboration, communication, attitude or behaviour. However, during the reflection session a discussion is facilitated that encompasses the process and content of the project.

To analyse the situation further they can make use of the designed reflection cycle. In this cycle, which cycles for each selected situation separately, the steps of Daudelin (1996) and the Bouwreflectie method are combined to come to four steps which are: (A) Observation and selection of a situation, (B) Analysis of the situation, (C) Formulation of changes or improvements and (D) Decide whether to implement change. These steps are iterative and are presented in Figure 5.5.
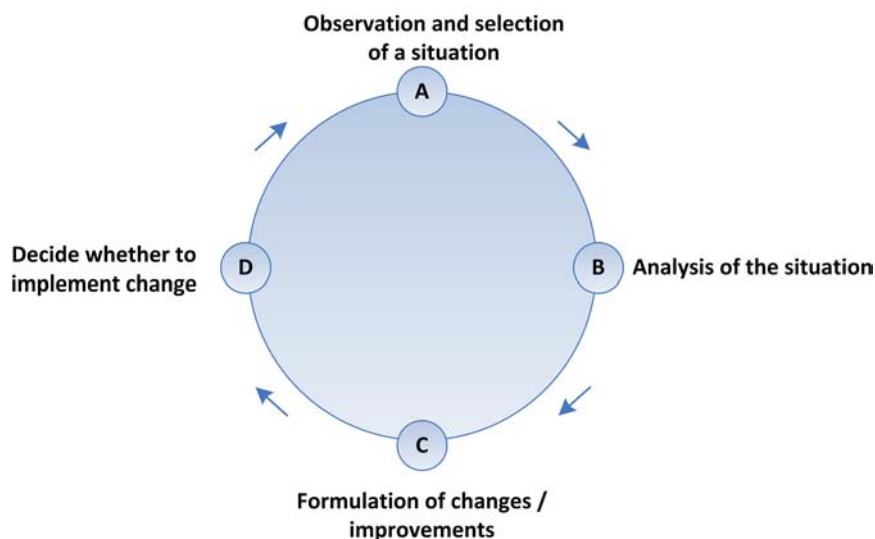

Figure 5.5 - Reflection cycle

Step A: Analysis

During the first step one wants to select a positive or negative situation from the past. In the analysis in Section 4.3.2 it is seen that the first three steps of Bouwreflectie which are observation, explanation of the observation and ask if they see it too are all important. In the first step of this design these three steps are all taken into account. During a discussion of previous period by the project managers the reflector observes important aspects. During this step he uses open and challenging questions to find situations that might need further analysis. Using questions he gives attention to the following aspects as they provide information about the collaboration, communication, attitude and behaviour:

- Atmosphere of the session;

- Verbal and non-verbal communication;

- Returning subjects during the conversation;

- Conflict handling between partners.

These aspects can provide information that show how project managers behave towards each other. For example when the atmosphere is tense the project managers might feel suspicious and do not trust each other. On the other hand if the atmosphere is relaxed the project managers can have a higher feeling of trust towards each other. On a communicational aspect it can be so that the project managers do not communicate with each other during the project. This results in the fact that project managers are not aware of decisions taken. This can lead to misunderstandings and conflicts.

When the reflector thinks he has observed something that needs to be further analyzed, he explains to the project managers what he has observed and asks the project managers if they see the same. When for example the reflector feels a negative atmosphere is present in the session, he can ask the project managers if they feel this too. If this is the case, the situation can be analyzed further.

Step B: Analysis

During the second step, the situation selected in the first step is analyzed. This analysis tries to make sense of the actions both project managers have conducted in the selected situation. To make sense of their acting, the tools of concept mapping (Gray, 2007) and the nine questions of Korthagen (2003) which both help to concretize the situation, are tools that are used to make clear how both managers experience the situation. The reflector helps during this analysis by asking open and challenging questions to the project managers.

By analyzing the situation more thoroughly this will show the project managers how their acting has influence on others and the project. This can result in the formulation of change in the third step.

For effective use of reflection it is discovered during the design of the method that next to the reflection conversation with both project managers, it can also be important to have a discussion with each of the project managers individually. With this discussion the project managers can speak more freely to the reflector without the other project manager present. In such a situation it can be important that the reflector has signed an official act of secrecy.

Step C: Formulation of changes / improvements

During the third step (C) the possibilities to change are discovered. This step leads to alternatives for change. During this step the project managers together discuss on what alternative actions can be formed. The reflector assists the project managers in this discussion.

Step D: Decide to implement change

The final step is present to decide whether the project managers want to change. If change is conducted, this step also looks into how this can be done. This will consist of making a selection of the alternatives formulated in step C. Agreements are made between project managers which will lead to action after the reflection session. These actions can be reflected during the next reflection session.

Evaluation of the session

After the reflection cycle is completed for all situations, an evaluation step is conducted. This extra step is not present in the Bouwreflectie method or literature. It is derived from conversations with experts at KPMG. During this step, the whole session is evaluated and decisions taken during the session are summarized. Although this step is not mentioned in the reflection literature or Bouwreflectie method it is seen important because it assures that the project managers know what actions they have to take in future situations. This step prevents that misunderstandings occur. These agreements can then be reviewed during the review of the previous period at the beginning of the next reflection session.

Use periodic reflection sessions

For the planning of the reflection sessions an interval of 4 to 6 weeks is used. This interval is used because this gives time to the situations to let issues that are developing become more visible for a reflector. This means that due to the time, situations during the process can form into something that can be made explicit and can therefore be observed better by the reflector.

It is important to make appointments for the next sessions right away, as according to Daudelin (1996) managers place empathy on action rather than reflection. To assure the project managers are going to use the method it has to be strictly planned.

5.2.4 Gathering of additional information (Phase D)

In order to get to know more about the project itself it is important that the reflector can gather additional information on the project. For the design of this session the gathering of additional information described in the Bouwreflectie method is used as a starting point. This contains of attending project meetings and talking and observing the project team during regular working hours.

For the design of the method for large IT projects an extra step is added which consists of studying the project documentation of the project. This simple form of information retrieval can bring new insights to the reflector and help him to help the project managers. By knowing more about the insights of the project he can think along with the project managers.

For the gathering of additional information no specific interval is given in the literature or Bouwreflectie. This interval has to be determined by the reflector. He can decide whether he thinks it is necessary to gather additional information on the project if he thinks this is necessary for him to do him job. It is important that the project managers are familiar with the fact that the reflector can speak with team members or observe at project meetings. This is explained during the intake session.

5.3 Chapter conclusion

The goal of this chapter is to come to the conceptual design of the method using the design specifications described in Section 4.4. Doing so it answers the last research questions of this thesis:

- *How can reflection be embedded in a method that it is applicable and ready to use for large IT projects?*

This question is answered as reflection is embedded in a method by making use of a generic process model and the structure of the Bouwreflectie method as a basis. Together they form a basis for a method that uses reflection-on-action as stated in the literature. By making use of the generic process model it is ready to be used in large IT projects.

For the design of the method four parties are involved. From both client and contractor these are the top management, project managers and project team. Furthermore, a reflector needs to be selected which will facilitate the sessions during the reflection process. The project managers are the ones who reflect together and have to be willing to do so.

The process of the method consists of four phases, which are:

- **Project start-up session**
  In order to be able to reflect the project managers need to be willingly to reflect and trustful towards each other. This environment is created during this session.

- **Intake session**
  During the intake session the concept of reflection, the task of the reflector is explained to the project managers. Furthermore, the project managers can bring up aspects that they find important to discuss during the reflection sessions.

- **Reflection session**
  During the reflection session the actual reflection happens. Project managers from both client and contractor discuss the content and process of the project. The reflector helps to search for aspects that can be improved by giving attention to the four soft aspects of collaboration, communication, attitude and behaviour.

- **Gathering of additional information**
  The goal of gathering additional information step is to give the reflector a better insight in process and the collaboration between project partners.

6 Empirical research to IT reflection

This section describes the empirical research that has been conducted to improve the designed method as described in Chapter 4. First, the design of the empirical study is described in Section 6.1. Second, Section 6.2 presents the results and analysis of the first part of the empirical research. Section 6.3 continues with the first developments to the method as derived from the analysis. Section 6.4 presents the analysis of the feedback received on the second version of the method. The main findings of this feedback are used in the second development step in Section 6.5 . Section 6.6 describes the final result of these development steps. Finally, Section 6.7 compares the developed method with the Bouwreflectie method.

6.1   Research design

Two different types of researches can be distinguished, theoretical and empirical research (Verschuren en Doorewaard, 2005). In order to be able to answer the research questions formulated in Chapter 1, both theoretical and empirical research is conducted. In the previous chapters the theoretical research led to the design of a conceptual method.

This chapter continues to develop the designed method using empirical research. Furthermore, the relevance of the method is increased by testing the method in practice. The empirical research also leads to adjustments and additions to the conceptual method. For the source of information there is relied upon structured interviews with experts in the field. With structured interviews one can let the interviewee exchange its own experiences. Interviews are also a good means to come to new insights by letting the interviewee give feedback to the method that eventually leads to improvements to the method (Yin, 2003).

6.1.1 Selection of the interviews

As stated before, for the development of the method based on reflection, the scope has been narrowed down to large IT projects contracted by the Dutch central government to commercial system developers. To create a full picture of the situation in the IT projects, experts are consulted at the side of the central government as well as the side of the commercial system developers. Five project managers from different organizations are interviewed. These organizations have gone through, or are currently involved in, a large IT project contracted by the government to an IT-service provider. Four of these project managers are working for large commercial system developers (Interview I, III, IV and V) and one of them is working for a Dutch ministry (Interview II). For each of the five interviews the background is described.

Before conducting the interviews, a short summary of the method and some core questions are sent to the interviewees. During the interview itself, answers to the core questions together with some extra questions are sought. The total questionnaire used during the interviews can be found in Appendix VI.

After each interview the results are incorporated in a new version of the method. This new version is then presented and discussed in the following interview. With this, the method is improved iteratively.

The minutes of the five interviews can be found in the Appendix (I, II, III, IV, and V). The main results and analysis of the interview results are presented in Section 6.2. All of the information from the interviews is written down anonymous or made unrecognizable to protect the identity of the interviewees.

6.1.2 Two development steps

As depicted in Figure 6.1, interviews and feedback of experts are used to develop the method and come to the final version of the method. The results and analysis of the interviews are presented in Section 6.2. This first development step which leads to the second version of the method is described in Section 6.3.

After the first development of the method, it is sent back to the interviewees in order for them to provide feedback. The received feedback is analyzed in Section 6.4. This analysis is used in the second development step of the method presented in Section 6.5.
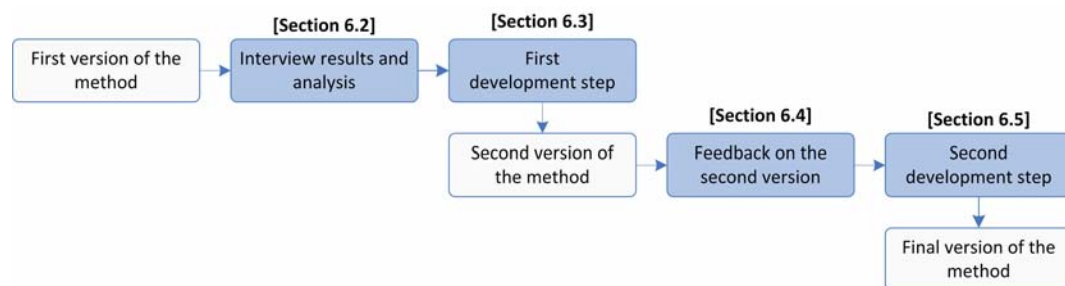
Figure 6.1 - Development of the method

6.2   Interview results and analysis

In order to develop the method, the results of the interviews, taken with the five project managers, are analyzed. This is done by giving attention to the relevance of the method in large IT projects (6.2.1) and practical improvements to the method (6.2.2). This leads to the main findings (6.2.3).

6.2.1 Relevance of the method

For the relevance of the designed reflection method that focuses on the four soft aspects in large IT projects, two of the interviewees (I and IV) state that in their projects measures are already taken to prevent communication problems. This is done in the form of for example communication plans as are defined in Prince2 (see Section 2.3) and the use of informal meetings in which the process of the project is discussed (Interview II). It is seen as important that the project partners start working as one team instead of two separate ones who only follow their own goals.

However, despite the presence of the current measures, communication problems are still present. Examples of situations that occur according to the interviews (I, II and IV) are: Not listening to each other, informing each other with wrong information or not willing to come to a solution. Also problems on behaviour and attitude affect the relationship between project partners. Examples of these aspects are: not being interested in each other and the creation of irritations towards each other (Interview I, V). The interviewees state that this is often due to the fact that project managers fail to comply with hard measurable factors in a

project. This leads to misinterpretations and with that attitude and behaviour can negatively change. Having a measure to focus on these soft aspects is useful because it is difficult to keep the hard factors clear to everyone. Having a method to keep the atmosphere a bit more informal instead of keeping strict to the specifications certainly helps to improve the project success (Interview V).

During one of the interviews (interview III), the interviewee stated that focusing on soft aspects is part of the job description of a project manager and that it should not be necessary to focus on these aspects. However, he also sees that projects still fail and that soft factors are one of the causes. As a possible cause he stated that in large IT projects, the project managers are already too busy with managing their own side of the project. With that, they do not have the time to look at the relationship between the client and contractor. The project managers are actually standing with their backs against each other. Therefore, making time to give attention to the relationship between client and contractor will help to improve the interaction.

According to one of the interviewees (Interview I) the need for this method also depends on whether the project managers have worked together in previous projects. He states that when project managers have worked together before, they already have a better understanding of what to expect from each other and how to manage their attitude and behaviour. Therefore, it might not be necessary to use reflection and look at the collaboration, communication, attitude and behaviour in the project. On the other hand, when the project managers have always worked together they might make assumptions sooner because for example it was always done that way. This may lead to unwanted behaviour and thus the reflector is of great assistance to make sure both parties stay sharp. It can also occur that during the previous project, situations happened that have negatively affected the relationship. Using reflection in the current project can then improve the collaboration between the two parties.

Interviewee V states that it depends on the personalities of the project managers within the project whether reflection will always be needed. Better result can be gained in one project over another, because sometimes more issues arise during the project which has to be discussed. However, when only few issues arise, the reflection frequency can be lowered so that it will cost less time.

Overall, for the interviews it can be concluded that the method is useful for improving the project success as at this point only little attention is given to soft factors. Interviewee I even states that it is strong that the designed method focuses on the tactical level of project management instead of the strategic level (or top management level) which is often the case. At the strategic level there is often too little knowledge about the day to day situation. At the tactical level, project managers have such a day to day relationship. Strong collaboration is extremely important here.

6.2.2 Practical improvements for the method

This section describes the practical improvements derived from the interviews for the method of reflection on large IT projects. It follows the structure that was setup for the conceptual design in Chapter 5. First the involved parties are discussed followed by the process of reflection.

Involved parties

Top management

In three interviews (II, III, V) it is seen that the top management can have a lot of influence on whether reflection will work for a project. Interviewee III stated that the added value of reflection is difficult to measure and therefore top management might not be willing to spend time and money on a method of which it cannot be said up front whether it will work. Also, the top management of both client and contractor have to work together to install a reflector who facilitates the process. This means that both organizations have to agree on the use of reflection and then agree on which type of reflector is used. Therefore, interviewee III states that more attention should be given to help the top management to make the decision to use reflection.

Project managers

From the literature it is seen that reflection will only work if the project managers are willing to discuss their own actions in the project. This is emphasized by the interviewees. They state that if the willingness is not present, this method will not work at all (Interview I, III, IV, and V). This means that in the method it is very important that the willingness of the project managers is checked at the beginning of the project in the project start-up stage.

Interviewee III states that by using a reflector, project managers might feel checked or monitored. He indicates that project managers should already focus on soft aspects as part of their job description. Therefore, the interviewee thinks the project managers might see the reflector as someone who is only present to monitor them and communicate this with top management. A project manager might think he is being monitored and can start behaving differently during reflection. This might result in losing willingness for reflection and can be seen as an aspect of trust between the project managers, top management and the reflector. To prevent this, the intention of the reflection method should be very clear. The reflector should explain his tasks clearly to decrease this feeling.

Reflector

During one interview (II) the interviewee states that in current project management methods relationships between the tactical level (Project managers), the strategic level (top management) and operational level (team members) are present. By involving top management and experts from the project teams in certain difficult situations, the decision-making on the project can be improved as no endless discussions will arise. Often project managers decide that further research or expertise from the operational level is needed (called refinement) or that situations need to be taken on a higher level (escalation) because the project managers itself cannot come to an agreement. However, to make such decisions the project managers of both client and contractor must have clear understandings of the situation. It might occur that one of the project managers has the attitude to always want to solve issues himself instead of escalating them to a higher level. This can lead to endless discussions.

The interviewee sees that the role of the reflector can be of help here. When using reflection, the reflector can look at when and how these decisions are made by the project managers. Whether the project managers take the decision to move discussions to a higher level is affected by the way both project managers are collaborating. The reflector can help by questioning both project managers why they do or do not want to escalate or refine certain issues.

During the design in Section 5.1.3 two formations for the reflector role are specified: one external reflector or two reflectors, one from both organizations. Both options are seen as feasible to be used in reflection (interview I, IV, V). According to interview I the option of two internal reflectors will lead to less resistance by the project managers because the project managers then work with people who are familiar. Interviewee IV adds that if reflectors are used from within the organizations, these individuals should receive a training to make sure they can fulfil their task. Interviewee V states that working with two reflectors also means an extra relationship is brought into the project. Both reflectors also have to collaborate, which also can lead to problems. Also, from a financial point of view two reflectors are not beneficial and the use of one external reflector can be chosen.

A negative aspect of the use of one external reflector is that he knows less about the project and organizations than internal reflectors do. However, this can be as well a positive aspect. Furthermore, one reflector might spot fewer issues than two reflectors do. The independency and objectivity of one external reflector are higher. In three of the interviews (interview I, III, V) this is seen as very important. On the other hand, an external reflector will probably have a more formal relationship with the project managers than two internal reflectors. Again, this can lead to the situation where the project managers feel monitored which results in a lower willingness for reflection.

From the interviews no clear decision can be made which of the two roles for the reflector (one external, or two internal; one of both organizations) works best for all large IT projects. It is stated in one of the interviews (interview I) that this decision should be made for each project separately.

One of the interviewees (interview III) proposed to remove the reflector from the process and let the project managers reflect together without a facilitator. This would save money because no reflector has to be paid. This can increase the support of top management, as no additional costs are made, so the decision to use reflection will be made sooner. Another advantage is that the project managers will not feel monitored by the reflector. However, not using a reflector may lead to less satisfying results because there is no one helping them with finding positive and negative aspects in their actions. A reflector also helps the project managers with finding their blind spots (Robertson, 2005). Furthermore, managers tend to place emphasis on action rather than reflection, as stated by Daudelin (Section 2.2.2). A reflector also helps the project managers by assuring that the reflection sessions are conducted. Therefore, not using a reflector during reflection in large IT projects will decrease the effectiveness.

In four out of five interviews (I, III, IV, V) the role of the reflector is seen as a facilitator who helps with the reflection process rather than an advisor who exactly describes what the project managers should do. It is their task to control the project. Otherwise, the project managers may feel that they lose control over the project. Interviewee II suggested that the reflector should receive mandate to make decisions on the process and content. According to him, this is useful when two parties cannot come to an agreement and the project needs to carry on without loss of time. However, by receiving mandate the reflector will loose its independency.

According to four of the five interviews (II, III, IV, V) top management should be kept up to date by the reflector. Top management can monitor if reflection really contributes to a better project. Reporting to the top management can be taken into account as this does not change the role of the reflector. Furthermore, with this reports top management can be convinced more easily to start using reflection. However, one should be careful that the project managers are aware of this. Otherwise they might not fully want to cooperate in reflection. This is also the reason reflectors should never report findings about individuals as this can damage the basis of trust between reflector and project manager.

Process of reflection

All five interviewees state that the method can be easily used next to their current project management methodology. The most used project management method is Prince2 as it is used by four interviewees (I, III, IV, V). One of the interviewees used an adopted version of PMBoK as his project management method (Interview II). By combining both methods it is seen by the interviewees that the potential of the project management methods focussing on hard factors can be used next to the reflection method focussing on the soft side. For practical usage, three of the five interviewees see no implications for the usage of the proposed method and think it can be implemented without trouble (Interview I, II, V).

One interview (I) indicated that next to the evaluation at the end of each reflection session evaluation can also be conducted at the end of the whole reflection process. This would increase the total learning ability of the reflection method. With an evaluation at the end of the project, the project managers together with the reflector can look back on the reflection sessions in order to learn for future use of reflection.

Below the opinions of the interviews on the four process stages used in the conceptual method are discussed.

Project start-up

All interviewees stated that project start-ups are already used in many of the projects that are conducted. However, in most project start-up session no attention is given to the match between project managers. According to Interview II, project managers working on large IT projects by the government are often already provided by the organizations and cannot be changed that easy. This is due to the fact that large governmental IT projects fall under the European tender law. This law results in the selection of a commercial systems developer who receives the project. This organization often already has a project manager selected who is going to manage the project. Therefore, the selection and matching of the project managers by the use of sociological tests as described in the conceptual method is not possible. The other interviewees also stated that matching project managers together would be difficult in a project.

Despite one cannot select and match the project managers based on their behaviour, interview IV and V state that one can perform some tests that show the behaviour and allergies an individual has. This can be conducted by using the same sort of tests as used with the match between project managers. By using these tests both project managers can find out what behaviour the other manager likes and dislikes. According to interview V these tests should only be conducted when both project managers are willing to conduct them. As the matching in the beginning cannot be conducted this form of looking at each others behaviour can be very useful as an alternative to improve the attitude and behaviour towards each other at the beginning of the project.

In three of the five interviews (I, IV, V) an informal meeting or team building session is already conducted to improve the informal relationship. Mentioning the informal meeting in

the method is thus not necessary according to those three project managers. However, the other two interviewees did not mention anything on that part. Therefore it is a good idea to keep the informal meeting as a part of the reflection method.

Intake session

In two of the interviews (I, III) it is seen that the experts find the explanation of the tasks of the reflector to the project manager extremely important. They state that the project managers should know what the exact tasks of the reflector are so they do not feel monitored. This is already part of the intake session. No specific changes are derived from the interviews about the intake session itself.

Reflection session

Interviewee IV stated the reflection sessions focus too much on the relationship between project partners. He states that the process and content of the project is then forgotten. He sees the process and content of the project as an important aspect why the relationship declines. For example: delays at one side of the project can cause irritations at the other side of the project because they cannot move on. This irritated attitude may result in negative behaviour back to the other side of the project. Eventually this may result in a conflict between parties. Therefore, he states that reflection sessions will work if the project managers discuss both process and content. When the project managers only discuss the four soft aspects collaboration, communication, attitude and behaviour, the sessions might become some sort of physiological sessions which cannot be the intention of the session. However, as the reflector needs to stay objective he cannot interfere in the process and content of the project. Therefore, the reflector should focus mostly on the process and relationship and with that the four aspects.

During one of the interviews (Interview III) an alternative for the process of the reflection sessions was proposed in which reflection becomes a two staged model. The interviewee stated that for the first stage of the process no reflector should be appointed. During that stage, the project managers give a grade to what they think is the status of the collaboration, communication, behaviour and attitude in the project. When this grade drops below 7 the project moves to stage two where a reflector is appointed. This second stage then follows the same path as the normal reflection sessions defined in Chapter 5.

This idea will certainly increase the top management support to reflection because a reflector is only hired when it will become necessary to have one. This will decrease the costs of reflection. However, it can be questioned whether the project managers are realistic in giving grades to their relationship. This fact is linked to the aspect of trust. When project managers do not trust each other they might give low grades. Next to that, the relationship between project managers can already be escalated at the time that they give a low grade to the relationship. At that point the discussing the soft aspects will become difficult. The reflector will become more of a problem solver instead of someone who facilitates a discussion that gives attention to both negative and positive elements of the relationship. As the intention of reflection is to solve problems before they become a conflict this option cannot be used as an alternative for the development of the method.

It was affirmed by two of the interviews (I, V) that conducting the sessions periodically is important to keep the focus on the reflection. The interval of approximately four weeks was seen as a good interval for projects larger than one year. The other interviewees did not mention anything on this aspect.

Gathering additional information

During the interviews it was indicated by interviewee V that not all information always passes the project managers. The project team members might not tell everything to their superior. Therefore, the gathering of additional information can be important to find out more about the relationship between client and contractor at lower levels. This is seen as useful by three of the experts (I, IV, V). The other two did not have an opinion on that aspect.

It was mentioned by one of the experts (interview V) that it is important that when the reflector gathers information on one side of the project, he also visits the other organization in order to prevent he looses its objectivity. The interval of this process should be considered by the reflector as he can see when it is needed. According to interviewee I gathering information at the top management will not be useful as these individuals have too much power within the project. They can then steer the project too much into one direction.

6.2.3 Main findings of the interviews

It is seen by the interviewees that soft factors play a large role in the success and failure of large IT projects. Below, the main findings of the interviews are presented.

Relevance

Currently, only little attention is given to the soft factors in a project. However, during the interviews it is seen that they play a large role as current projects cope with problems on soft aspects. Having a measure to focus on these soft aspects is useful because it is difficult to keep the project clear to everyone involved. This because both project managers are often too busy with directing the own side of the project. By reserving time for a session in which attention is given to the interaction between client and contractor, the collaboration, communication, behaviour and attitude can be improved. Therefore, the method of reflection in IT projects is seen as relevant. However, during the analysis several aspects are found that affect the design of the method for large IT projects. Below, the main aspects that affect the method are summarized.

Involved Parties

During the analysis it is seen that the involved parties described in the initial design should all be involved in the method. However, one of the interviewees indicated to remove the reflector at the beginning of reflection. And only include him when it is necessary. However, a reflector then will become a problem solver instead of someone who helps the participants to let their relationship stay at a high level. From the analysis the following adjustments to the tasks of the involved parties are shown. These adjustments mainly focus on the role and tasks of the reflector.

- **Increase top management support with regular feedback from the reflector**
  From the interviews it is seen that top management support is extremely important to make reflection effective. To increase this support the reflector can provide regular feedback to the top management.

- **Formation of the reflector role**
  The formation of the reflector role depends on the top management of the project. Both options (one external reflector or two internal reflectors from both organizations) are seen by the interviewees as possible. Top management of both client and contractor together should decide which option to use. Looking at the different aspects of the two forms can help in this decision. Not using a reflector is not seen as a possible option for the design of the method as it will decrease the effectiveness of reflection.

- **Reflector should be a facilitator**
  A reflector should be a facilitator and should not interfere with the content of the project or give advice to the project managers. He should only focus mainly on the four aspects of collaboration, communication, attitude and behaviour. When giving advice, the reflector might loose its objectivity and independency. Therefore, a reflector should not receive mandate.

- **Reflector should give attention to escalation and refinement of decisions**
  The reflector should give attention to the escalation and refinement of decisions in the project. Here, soft aspects can play a large role whether the decision is made to research situations in the project on a lower or higher hierarchical level. Focussing on these decisions can show trust and whether the involved parties are willing to find solutions.

Process of Reflection

The process of reflection is seen as feasible and the interviewees notice no large difficulties for the usage of the method in practice. They describe the interval of four weeks as a good interval. It is seen that the explanation of the tasks of the reflector is important top create the willingness at the project managers. Gathering additional information is also indicated as useful for the reflector to create a better view of the project.

It is also indicated in the interviews that the method can be used next to their currently used project management methods of Prince2 and PMBoK. The reflection method can focus on the soft side of process steps described in project management methods. An example is the decision to escalate an issue. By combining both methods they see a great potential as then both hard and soft factors receive attention. Furthermore, they describe some adjustments that can improve the process of the method.

- **Use evaluation to improve the learning process**
  To learn from the whole reflection process an evaluation step should be added to the end of the whole reflection process. By making a report of the whole reflection process the organizations can learn for future projects.

- **Matching of project managers cannot be conducted**
  During the project start-up it is not seen as possible to match two project managers together because the project managers are often already chosen by the organizations itself before the project starts. However, according to the interviewees it is possible to let the chosen project managers take some tests to find out what their positive and negative aspects are so they can account for those.

- **Focus should be placed more on project process and content**
  It is stated by the interviewees that reflection should focus more on the process and content of the project and not only to the four aspects as derived from the literature. Otherwise, the reflection sessions can become some sort of psychological sessions.

- **Gathering additional information at both sides of the project**
  It is indicated that gathering additional information about the project is useful. However, to assure the objectivity, the reflector should always observe at both the client and contractor side of the project when he gathers additional information.

6.3 The first development step

This section describes the adjustments or additions that are used in the method based upon the analysis of the interview results presented in Section 6.2. It follows the structure of main findings presented in Section 6.2.3. First, the adjustments to the involved parties are discussed in Section 6.3.1, followed by the process of reflection in Section 6.3.2.

6.3.1 Involved parties

Below the adjustments derived from the analysis related to the involved parties of the method are described.

Increase top management support with regular feedback from the reflector

It is seen that top management support for reflection is needed from both client and contractor. To increase this top management support the reflector can provide regular feedback on the situation to the top management. This can be done after each reflection session or when the reflector or top management thinks it is necessary. This feedback only contains aspects about the general collaboration, communication, attitude and behaviour in the project. It should not contain specific information about one of the project managers as this can affect the trust in the relationship between reflector and project managers. Therefore, it is important to inform the project managers that feedback is given to the top management. Otherwise, they might see the feedback as monitoring their functioning and their willingness to reflect is lost. The project managers are informed during the explanation of the tasks of the reflector, conducted in the intake session.

Formation of the reflector role

During the design of the method it is seen that for the formation of the reflector role two options are setup. These are: one external reflector and two internal reflectors (one of both organizations). As seen in the analysis of the interview results, both options are seen as feasible by the interviewees. Therefore, both options are taken into account in the second conceptual method for reflection on large IT development projects. One of the interviewees also suggested reflection without the use of a reflector. This idea is rejected for the design, as according to the literature a reflector increases the effectiveness of reflection. Also a reflector makes sure that reflection is conducted. Reflection without a reflector will reduce the effectiveness.

As both options are taken into account in the final design, top management has to decide which of the two formations they will use. The positive and negative aspects of each of the formations derived from the interviews are presented in Table 6.1. These aspects can help top management in their decision for one of the formations.

Table 6.1 - Aspects of internal and external reflector

|	Two internal reflectors	One external reflector
Relationship	More informal Extra relationship between the reflectors exists which must be kept strong	More formal
Costs	Higher	Low
Observations	Two individuals to take observations	One persons might miss aspects
Background	Already familiar with the project and organization	Has to learn much about the project background
Resistance	Low, as reflectors are familiar	Higher, as reflector is someone from outside the organization.

Reflector should be a facilitator

During the analysis it is seen that the reflector should be a facilitator and not an advisor. If a reflector provides advice on the content, he will loose its objectivity. Therefore, the reflector

will not receive an advising role in the reflection sessions. However, the reflector can help the project managers with giving some advice on the process and relational part. However, he should not push his opinion. By making observations on the collaboration, communication, attitude and behaviour and explaining what he observes the reflector can help the project managers improve their working relationship.

Reflector should give attention to escalation and refinement of decisions

As seen in the analysis, during the project the project managers have a relation with both strategic level (top management) and operational level (experts from the project team). This relation arises as in project management methods, tools like escalation are described. With escalation the project managers decide that a decision has to be taken on a higher level (strategic level) in the project. This often means that top management of the project has to decide on a certain subject. Project managers can also decide to refine issues at a lower level (operational level) in the project. This means they can ask experts in the project teams to conduct more research on a certain subject before they make a decision. Situations in which escalation or refinement is used are linked to the content of the project. This often means the content is not clear enough for project managers to make a decision. Making such decisions can be difficult as they mean that the project does not go according to plan. Another meaning can be that both project managers cannot find a solution together due to contrasting goals. Decisions then have to be made on other levels. This can feel as a failure to the project managers. The involved parties and relations in reflection together with the escalation and refinement is depicted in Figure 6.2.

The reflector can help in situations where the decision to escalate or refine has to be made as the reflector focuses on the soft factors which are important when making such decisions. The reflector should watch whether project managers do not use escalation or refinement too often or too seldom. For example when they "do not feel like" discussing the situation. This can be caused by their attitude in the project. For example when they are very busy and according to them there is no time left to spend on searching for compromises. Another possibility is that the project managers keep on trying to find a solution to all problems they face and escalation or refinement is used seldom. Constantly trying to come to a solution together can take too much time which slows down the decision making process. Moreover, finding a solution is not always possible and sometimes escalation or refinement is needed.
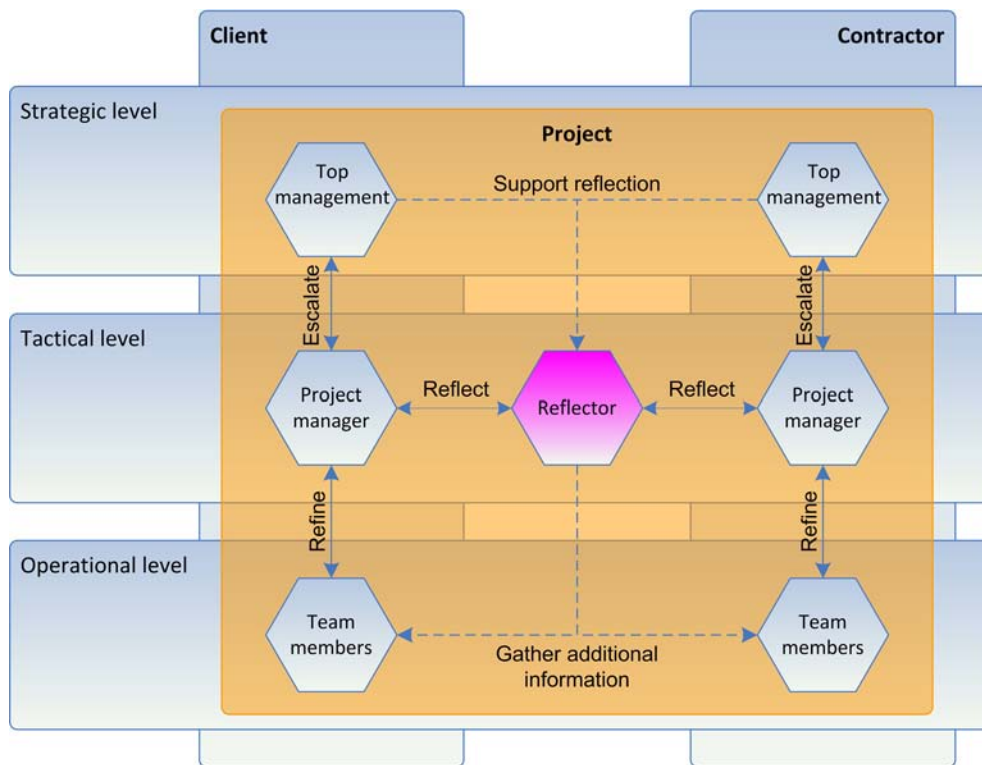
Figure 6.2 - Involved parties and relations in reflection on large IT projects

When the reflector observes that the project managers cannot come to a compromise in a certain situation he can help them by asking them why a solution cannot be reached. This is often due to certain goals both parties have or a certain attitude of the project manager. The reflector should trigger them to listen to each others goals and find a solution together. If no solution can be reached after this analysis, escalation or refinement can be used. However, the idea is that the reflector tries to let the project managers to come to a solution together.

By letting the reflector focus on the decision to escalate or refine issues, the collaboration can be improved as fewer arguments occur during the project. This will improve the working atmosphere between the project managers.

6.3.2 Process of reflection

Below the adjustments originated from the main findings of the interviews (Section 6.2.3) related to the process of reflection are presented.

Use evaluation to improve the learning process

One of the results of the interviews was that evaluation at the end of the reflection process adds to the learning effect of reflection. This can be conducted in the form of an evaluation session. This session can take place in the completion stage of the process model of Cadle and Yeates (2008). The total process of the method is therefore extended with the evaluation session in the completion stage and is depicted in Figure 6.3.
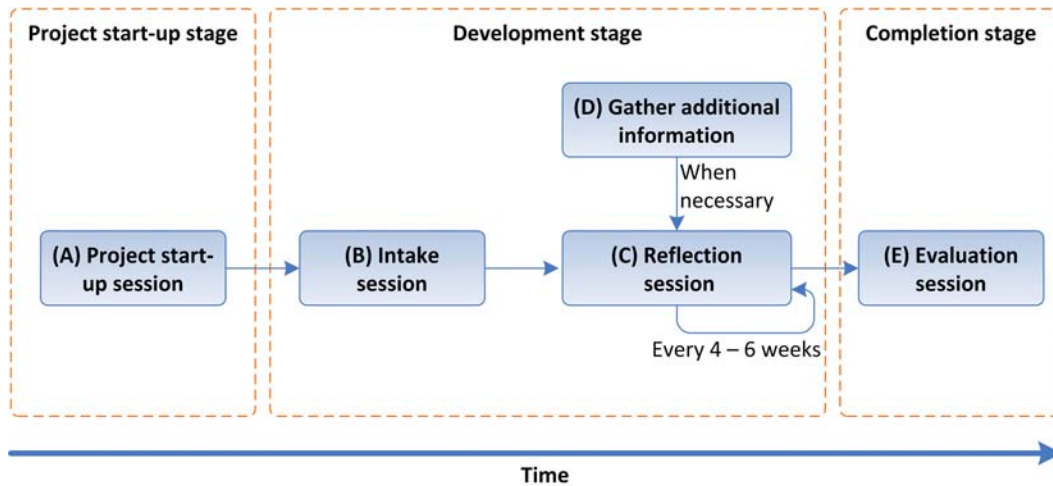
Figure 6.3 - Method overview with adaptations from first development step

During this last session of reflection, the reflection process itself and the soft aspect during the project are evaluated in order to learn from it for future projects. Unlike the regular evaluation sessions already defined in project management methods this session will focus on the four soft aspects of collaboration, communication, behaviour and attitude as discussed during the reflection sessions in the project. This is done by letting the project managers together with the reflector look back on the project process and reflection sessions. By discussing how the project went and what aspects in the reflection sessions are helpful, the findings can be used for future projects. Finally, the project managers should try to formulate improvements for future projects which can also be used as a learning mechanism.

In order to use the findings in other projects the reflector documents the findings of this evaluation session. This assures it can be read and used by others in both organizations so the learning effect of reflection is extended. However, one should be aware that no aspects are written down that could negatively affect the feelings of the project managers. This way these findings can be used as input to create top management support for reflection in new projects.

Matching of project managers cannot be conducted

As seen in the analysis in Section 6.2.2 it is not possible to match two project managers before the project starts. This due to the fact that project managers are often already selected by the organizations and cannot be changed anymore. This step is removed from the project start-up session in the method. However, as creating strong collaboration at the beginning of the project is an important aspect of the method, this should receive attention.

As seen in the analysis of the interviews, tests can be performed by both project managers to show their behaviour and allergies. By using the results of these tests, both project managers can learn the specific behaviour the other project manager likes or dislikes. The results can improve the relationship between the project managers However, the project managers have to be willing to conduct these tests and not be forced. Resistance can arise to these tests because project managers might not want others to know what aspects of their behaviour are strong and weak. By explaining why it is useful the project managers can be convinced. However, taking the tests is optional.

Focus should be placed more on project process and content

During the interviews it seemed that the project managers in the method only discuss the four soft aspects of collaboration, communication, attitude and behaviour. However, this is not the intention of the discussions in reflection. These discussions should concern the process and content. However, the reflector mainly focuses on the four soft aspects. This is described more clearly in the final method.

Gathering additional information at both sides of the project

For the gathering of additional information the document inspection, attending project meetings and observing project team members are confirmed as useful. The results of the interviews show that when the reflector gathers information on one side of the project (either client or contractor), he should also gather information at the other side to assure he is seen as objective by the project managers. Doing so, a feeling of trust is created.

6.4   Feedback on the developed method

During Section 6.3 the conceptual design of the method from Chapter 5 is developed to come to a second version of the method. This second version is sent back to the interviewees to derive their feedback. This resulted in findings which are presented and analyzed in Section 6.4.1. This analysis leads to the main finding of the feedback presented in Section 6.4.2.

6.4.1 Results and analysis

The respondents again indicate that the method is useful for large IT projects as it gives attention to the neglected soft side of projects. However, the feedback also contained some practical improvements to improve the method.

Involved parties

In the method it is described that a reflector should have experience with IT projects as this will help him to understand the way IT projects work. However, one of the respondents explains that having experience can also be a disadvantage. He states that by having experience the reflector can start to think in possibilities and accidentally provides advice on the content of the project. This will affect his role as a facilitator. However, as described in Bouwreflectie (Chapter 3) when a reflector does not have experience with IT project he will have more difficulties in observing situations where problems may arise. When this is kept as a characteristic in the method, the reflector must pay attention he does not provide advice on the content to the project managers.

In the developed method the match between project managers is discussed thoroughly. However, looking at the match between reflector and project managers (and between two reflectors when this option is chosen) is only described shortly. It is seen by the respondents that this relationship is very important when reflecting. A feeling of trust is needed between the reflector and project managers. This feeling of trust is also described in the literature (Section 2.2.4) as necessary for the participants to be open and explain their feelings. Therefore, looking at this relationship in the method should be taken into consideration.

Process of reflection

It is indicated that during the project-start-up three of the steps should be conducted before the project start-up session. The three steps that are indicated to be moved are: decision to use reflection, appointing a reflector and the training of the reflector. These steps need to be finished when the project start-up session starts. By conducting these steps before the

project start-up a more logical process will take place. Furthermore, the appointed reflector, which then will already have had some training, can more easily help during the project start-up. This last argument is strong as the reflector otherwise would be selected just prior to the project start-up and it is difficult for him to help during the session.

One of the respondents indicates that reflection in the conceptual method is conducted only on situations from the past. He states that also the currently running situations should be analyzed in the reflection process so they can be adjusted while they are running. Reflecting on current situations can be seen as some form of reflection-in-action described in Section 2.2.3. However, reflection-in-action is conducted alone and does not take place in reflection sessions but takes place at the time the actual action happens. This is often stimulated by surprise. This is linked to single loop learning as the process of the reflection method uses double loop learning. However, it is seen that by reflecting on the currently running situations, adjustments can be made quicker and the project can be kept on track more easily.

By one of the respondents the gathering of additional information by studying documentation by the reflector is seen as irrelevant. The method is about soft factors and studying project documentation is more about the content of the project. However, by studying project documentation the reflector can gain more insight in the project and with that he can project itself in the situation of the project managers. Especially when an external reflector is chosen this is useful as he has less experience with the organization and projects than internal reflectors do.

6.4.2 Main findings

Below the main findings from the feedback of the project managers are described.

Involved parties

- **Experience of the reflector**
  The need for experience on IT projects as criteria for a reflector is questioned by one respondent. However, it is seen in the analysis that this experience increases the efficiency of reflection. Therefore, this will be kept as a requirement in the method. This means the reflector must pay attention he does not provide advice on the content to the project managers.

- **Look at the relationship between reflector and project managers**
  It is indicated that the relationship between project managers and reflectors is not investigated. However, this relationship is important to create a relation of trust. Therefore, checking this relationship should be added to the method.

Process of reflection

- **Learning from current situations**
  It is indicated that next to look back on former situations one must also look at currently running processes. This should be taken into account in the method.

- **Move some steps from the project start-up session**
  Some of the project steps in the project start-up phase should be conducted before this session to assure they follow a more logical process.

- **Gathering of information by studying project documentation is seen as irrelevant**
  Studying project documentation is seen as irrelevant. However, with this the reflector can gain more insight in the project. Therefore, it is kept in the method.

6.5 The second development step

This section describes the adjustments or additions that are used in the method based upon the analysis of the feedback presented in Section 6.4. It follows the structure of main findings presented in Section 6.4.2. First, the adjustments to the involved parties are discussed in Section 6.5.1, followed by the process of reflection in Section 6.5.2.

6.5.1 Involved parties

This section describes the found adjustment to the involved parties. As the experience of the reflector will be kept as a requirement, this will not be described further.

Look at the relationship between reflector and project managers

It is seen in the analysis that looking at the relationship between project managers and reflector is important for the success of reflection. This is done by extending the step in the project start-up session in which the project managers check their relationship. The investigation of the relationship between project managers and reflector (and when selected, between two reflectors) is added so that trust between the reflector and project managers can be build. This is done by conducting a short meeting between the reflector and project management in which they introduce them to each other and discuss how they want their relationship to be.

6.5.2 Process of reflection

This section describes the adjustments derived from the analysis of the results from the second development step described in Section 6.4.1.

Learning from current situations

As seen in the analysis, looking at both current and former situations can help to improve the project. Therefore, the method is adjusted as it now encompasses the discussion of both current and former situations.

Moving some steps from the project start-up session

To assure the reflector can help during the project start-up session and it is clearer who and when it is decided to use reflection, an extra phase is added to front of the reflection method. The three steps, decision to reflect, selection of the reflector and training of the reflector, are placed in this phase. This phase is called "reflection start-up session" and takes place before the project start-up session is conducted. Adding this phase to the reflection process leads to the following process model as depicted in Figure 6.4. This is the final process of reflection.
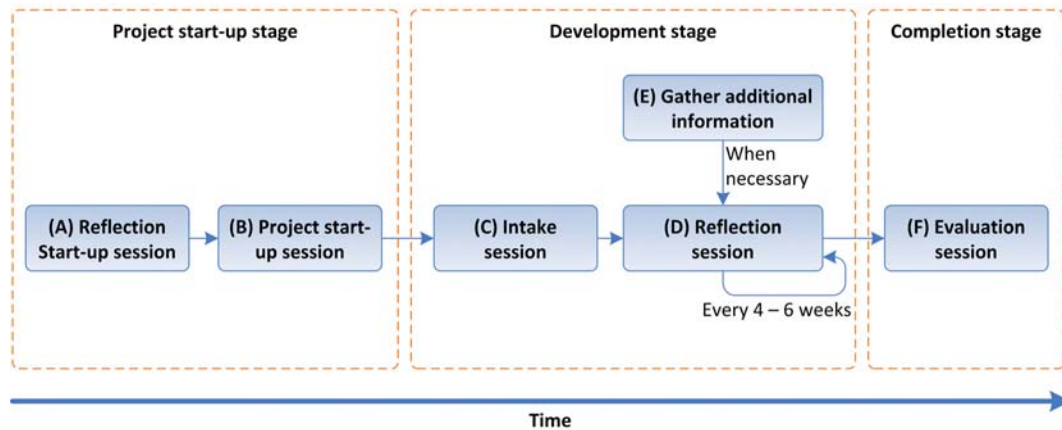
Figure 6.4 - Final process model of reflection

6.6 Final method

The analysis of the literature and Bouwreflectie (Chapter 4) has resulted in the first version of the design (Chapter 5). This design consisted used the similar involved parties and process steps as did the Bouwreflectie method. By conducting interviews the relevance of using reflection to focus on soft factors is determined as useful. This because the interviewees describe they cope with problems that are affected by soft factors.

It is indicated that he method can be used perfectly in combination with currently used project management methods like Prince2 and PMBoK. By using the reflection method next to project management methods, the reflection method can focus on the soft side of process steps described in project management methods. An example of this is that the reflector can observe when the project managers decide to escalate an issue. By combining both methods a great potential is indicated as both hard and soft factors receive attention.

The designed method is further developed using two development steps. This development steps assure the designed method is ready to be used in practice. This development led to the final method contain six process phases: reflection start-up, project start-up, intake session, reflection session, gathering of additional information and evaluation as depicted in Figure 6.4. During these process phases four parties are involved in reflection: top management, project managers, project team members and the reflector as seen in Figure 6.2.

During the research four attention points are found for effective reflection:

- **Top management needs to support reflection**
  Top management needs to support reflection. This can be difficult as it is hard to measure the effectiveness with and without reflection. In the decision to use reflection, top management should look at past and currently running projects that already use reflection. The use of the evaluation at the end of the reflection method can also help for making the decision in future projects.

- **Project managers need to be willing**
  In both the literature and interviews it is indicated that the willingness of the project managers is of great importance will reflection be effective. When project managers are not willing to reflect, reflection should not even start.

- **Reflector should only facilitate and not provide advice**

It is seen important that the reflector only facilitates the reflection process and does not provides advice on the content of the project. This would decrease its objectivity as he could accidentally choose sides.

- **The project managers should discuss process and content**
  The project managers should not only discuss the four soft factors but also discuss the process and content of the project. Otherwise, reflection will turn the reflection sessions into some sort of physiological sessions which is not the intention of the method.

6.7 IT reflection versus Bouwreflectie

The reflection method for reflection on large IT projects has used the Bouwreflectie method (described in Chapter 3) as a starting point. By developing the method further with the use of interviews the presence of several differences between Bouwreflectie and the designed method. Below the most important differences on the involved parties and process are highlighted.

- The reflection method for large IT projects has two extra phases, which are the reflection start-up phase and the evaluation phase in the completion stage of the project.

  The reflection start-up phase includes the decision to reflect and the selection and training of the reflector. These steps are also present in the Bouwreflectie method but are seen by the project managers of large IT projects as important to be conducted before the project start-up phase is started.

  The second phase that is added is the evaluation at the end of the reflection process. This phase improves the learning effect of the method by looking back on the whole project and reflection process. These evaluations are also useful for showing the added value of reflection to the top management which can help in the decision to use reflection for future projects.

- In the Bouwreflectie method only the usage of two internal reflectors is described. However, it is seen in the research that using one external reflector can also work for large IT projects. This option will cost less money and is therefore more attractive to the top management of a project. However, when using one external reflector one should be careful as resistance can arise which reduces the willingness of the project managers. To choose between the two forms, five aspects for the comparison of the formation of the reflector are setup.

- In the method two extra tools are presented which can help to analyze the collaboration, communication, behaviour and attitude in a project. These tools are concept mapping and the nine questions of Korthagen and are derived from the literature review. Using these two tools will increase the effectiveness of reflection as situations can be analyzed better.

- Finally, it is seen from the interviews that a reflector can also assist in the decision making process to escalate or refine issues to other levels in the project. This step was not yet included in the Bouwreflectie method. The processes of escalation and refinement, already described in current project management methods can be affected by the attitude or behaviour the project managers show during the decision making process. This links the reflection method to currently used project management methods.

In spite of the presence of several adjustments, the basis of Bouwreflectie is still present in the reflection method for IT projects. During the interviews no specific aspects are identified that indicate that reflection should be conducted significantly different. Furthermore, no IT

specific adjustments are made to the method. The developed IT reflection method will probably also work as an improved Bouwreflectie method in infrastructural and construction projects. Therefore, it can be concluded that for reflection to work, the domain of the project is not of significant importance. However, to prove this statement the method has to be tested in practice first.

6.8   Chapter conclusion

In this chapter two development steps are conducted to improve the method for use in large IT projects. From the first development step improvements for the method are derived which led to the development of the second version of the method. This second version is sent back to the interviewees of the first development step in order for them to provide their feedback. This feedback led to improvements for the design of the final method of reflection on large IT projects as presented in: "Reflection manual: A method for project success focussing on soft factors" (Perk, 2009).

During the two development steps the method is determined as relevant for usage in large IT projects by the interviewees as it will increase the attention to soft factors and with that reduces the misunderstandings and conflicts. It is also indicated that it could be well used next to current project management methods as then both hard and soft factors are addressed. For effective usage of the method four attention points are identified. These are:

- Top management must support reflection;

- Project managers must be willing;

- The reflector should only be a facilitator and not provide advise;

- In reflection sessions process and content should be discussed by the project managers.

By comparing the designed method with the Bouwreflectie method it is seen that the basis of both methods is comparable. The designed reflection method for large IT projects has several changes that increase the effectiveness of the method and are not IT specific. The IT reflection method could be an improved version of the Bouwreflection method as the domain of the project is not of significant importance. However, this must receive testing in practice first.

7 Conclusions and discussion

This chapter provides the conclusions and discussion drawn from the research conducted in this thesis. First, conclusions are formulated that are based on the results from the literature and field study (Section 7.1). These conclusions have consequences for future research on reflection in IT projects. In the discussion (Section 7.2) a critical examination of the research is given to be able to argue the consistency of the findings. Furthermore, the implications for both the theory and practice are given (Section 7.3). This chapter ends with some recommendations for future work (Section 7.4).

7.1 Conclusions

The goal of this research is to create understanding of the concept of reflection and how this can be used in the design of a method to improve the performance of large IT projects. In the previous chapters answers are provided to the sub-questions derived from the hypothesis. This section deals with the conclusions which help to validate or reject the hypothesis:

> *The concept of reflection used as a method to improve the collaboration of project partners by focusing on soft factors, adds value to the success of large and complex IT projects contracted by the central government to commercial system developers.*

In the research the soft aspects: *collaboration, communication, attitude* and *behaviour*, are identified as key aspects as they are linked to the success and failure factors of large IT projects. Giving attention to these soft aspects will improve the success factors and reduce the factors for failure in large IT projects.

In the research, reflection is described as looking back on former and current actions. By looking back on former and current actions, and discussing the four soft aspects helps to reduce the failure factors of large IT projects. Therefore, reflection is seen as useful for improving the success of large IT projects.

Currently used project management methods, like Prince2 and PMBoK, focus on hard factors and provide only little attention to soft factors. Furthermore, the research shows that reflection is not yet incorporated in these project management methods. Therefore, a method using reflection focussing on soft factors is seen as relevant for improving the success of a large IT project.

As a deliverable of this thesis a method using reflection is designed. For the design of the reflection method for large IT projects the method of Bouwreflectie is used as a starting point. This method is indicated as a strong basis for the design of the reflection method for large IT projects.

Using interviews it is seen that the initial designed method, which was based on literature and the Bouwreflectie method, could be further improved. Several adjustments are

conducted to the initial designed method. These adjustments led to an improved usability of the method in practice. The final method is enclosed to this report in a separate document called: "Reflection manual: A method for project success focussing on soft factors".

During the research no direct indications are found that the improved IT reflection method could only be used for large IT projects. It is found that the domain of a project seems not of significant importance for the usage of the reflection method. However, to validate this statement, the method should be further tested in practice first.

The developed reflection method can be used in combination with current project management methods to capture both hard and soft factors that affect the success and failure factors.

It can be concluded that when the method of reflection is taken into practice, the following main points are of importance:

1. Reflection must be supported by top management of both client and contractor;

2. The project managers of both client and contractor must be willing to conduct reflection.

3. The reflector is used as a facilitator who helps the project managers reflect. He should not provide advice on the content of the project.

4. The project managers should discuss both process and content and not only focus on the four soft aspects.

Overall, it can be concluded that the hypothesis still stands as the study indicates that reflection focusing on soft factors improves the projects success. By giving attention to the soft factors of collaboration, communication, attitude and behaviour it is seen that several success and failure factors of large IT projects can be improved. This eventually results in the improvement of the success rate of these projects.

7.2 Discussion

As with all research, some limitations should be taken into account when considering the conclusions described in the previous section.

The scope of this research is on large IT projects contracted by the central government to commercial system developers. Therefore, the findings are specific for this type of projects. To ensure the results can be generalized to a broader range of projects, such as projects contracted by a private client, more research is needed.

In this study, both client and contractor organizations are interviewed. However, for this empirical research only one project manager of the central government is interviewed. From the commercial system developers' side, four project managers are interviewed. This may have given an unbalance in views and hence the results of this research. In order to increase the validity more interviews should be conducted with the central government. Furthermore, active experimentation of the method in real-life projects would improve the validity of the developed method.

The reliability of this research is covered by using a case study protocol and the development of interview minutes. Furthermore, the setup interview minutes are examined by the interviewees. Also, the interviews itself are recorded.

7.3 Implications for theory and practice

For the theory, this research contributes to project management insights as in current research no direct relationship can be found between reflection and IT project management.

Also, different aspects of reflection are combined to form one method. Therefore, the findings of this research can contribute to an increase of general and specific knowledge of reflection within large IT projects. This can trigger the onset for larger scaled research on reflection within IT projects.

The research also has implications for managing the projects in practice. By using the designed method next to the currently used project management methods, project managers have to give more attention to the soft side of project management. Reflection will change the way of working in projects as time has to be reserved by the project managers to reflect on their actions.

7.4 Recommendations for future work

To conclude this chapter recommendations for future research on the given subject are provided. The most important recommendation for the future is to test the developed reflection method in practice using active experimentation. This way the method can be validated and the design can be optimized for usage in real-life situations.

During this research it is seen that the domain in which a project is conducted is not of significant importance for the usage of the method. However, in both the Bouwreflectie method and the designed IT reflection method the focus is placed on projects contracted by the central government to private contractors. In order to broaden the generalization of the findings, and to see whether reflection is also useful in projects contracted by private organizations instead of the government, more research is needed. The results may be different for privately contracted projects. Private organizations often have a different culture with a stronger focus on strict regulations and agreements than is usual in public organizations. This can have a different influence on the collaboration, communication, attitude and behaviour of the project managers during the project.

This research gives attention to the interaction between the project managers of both client and contractor. However, the interaction on one side of a project is ignored in this research. It would be interesting to investigate whether reflection works on one side of the project. This may also improve the project success.

Reflection

This section reflects on the process of writing this thesis. Using the definition from the research, I will reflect by looking back on the activities I conducted during this research in order to learn from them for future situations. Furthermore, a reflection on a more personal level is given. Overall, conducting this research and the writing of the thesis has been an enormous learning experience.

Reflection on the research

When I look back on my research I observe that some actions should be conducted differently in the future. In the beginning of the research for example, I strongly focussed on the Bouwreflectie method as this was the starting point of my research. This created a blind spot which resulted in neglecting other manners of reflection for the design of the method. This became an issue during the literature research as I was trying to find aspects similar to Bouwreflectie. Fortunately, after some time I started to see that I should generalize more and look for specific elements that could be used to form a method for large IT projects.

During the empirical research I needed to select interviews. I now think that I was satisfied with the selection of five interviewees too quickly. I think I should have tried harder to search for some extra individuals to interview. Especially on the side of the central government an extra interview would have been useful as only one interview is taken on that side of the project. This showed me that I should not be satisfied with my decisions too soon. I should look critically at every decision I make, so that I am sure I will achieve my full potential.

When looking back on processing the results of the interviews, I noticed that at the beginning I was a bit inaccurate which resulted in a deficient analysis. Being more thorough at that point would have saved me a lot of time and work. After I started to notice that I should bring more structure in my work, the analysis of the results improved which led to better conclusions.

Overall, I conclude that I should think more before I act. Applying this in future projects will save me a lot of time and stress.

Reflection on a personal level

In consultation with my supervisor at KPMG I choose "reflection in large IT projects" as subject for my Master thesis. Soon I noticed that I found it difficult to convert the subject into a research proposition. Initially, I have struggled a lot, and questioned myself how to approach this research.

When I realized this approach was not working, I slowly attempted to ask advice from colleagues, my supervisor and others. These individuals were all willing and able to provide me with help. Realizing this was an eye-opener for me. I attempted to approach the research in a different manner, the tide changed. Sharing my viewpoints with others provided me new insights for the research. As the thesis started to form, it provided me with more confidence which resulted in a higher motivation. I now realize that I should not try to struggle on my own too long but ask for help more quickly.

It was a difficult but valuable experience. Especially, since I noticed that the four soft aspects (collaboration, communication, attitude and behaviour) described in my thesis affected me personally.

Collaboration: I did not collaborate enough at the start of the project.

Communication: In the beginning I rarely communicated with others.

Attitude: I thought I had to do everything myself.

Behaviour: I became inaccurate and did not use my full potential.

When looking back at the process I think that a reflector could have helped me during the research. This because at the point I started to include other individuals (who acted like reflectors that observed my process and behaviour) the process improved significantly.

Although, I found it difficult to continue at several moments in time, I persevered and eventually started to see the research as a challenge. This has resulted in the fact that I am proud on both this report and my personal development I have experienced during the period of my research.

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Appendices

I   Interview report: Large commercial system developer

Case description

This interview was conducted with a project manager working on projects for a large commercial system developer. Several large IT projects contracted by the central government have been conducted by the interviewed project manager.

Case report (Dutch)s

Softe factoren als samenwerking, communicatie, houding en gedrag hebben zeker invloed op het succes of falen van grote IT projecten. Voorbeelden hiervoor binnen grote IT projecten zijn:

- Niet luisteren naar elkaar

- Verkeerd of niet inlichten van elkaar

- Aan elkaar irriteren door gedrag dat ze vertonen (bijvoorbeeld ongeïnteresseerd)

- Er niet altijd samen uit willen komen en niet betrokken zijn.

Door dit soort voorbeelden verhard de relatie zich in een project en kan het proces van het project verslechteren. Sommige mensen verschuilen zich in zulke situaties dan ook erg achter email. Terwijl je beter even kan bellen in de belangrijke gevallen om zo de communicatie goed te houden. Dit zijn allemaal zaken die op dit moment nog weinig besproken worden gedurende een project. Wel wordt er vaak een communicatieplan opgesteld aan het begin van een project waarin vastgelegd staat wie met wie communiceert en waarover.

<u>Reflectie methode</u>

Een methode om te letten op de softe factoren tussen project managers wordt gezien als een welkome aanvulling op het project management zoals die nu gebruikt worden. Voor grote IT projecten van de overheid is dat meestal Prince2. Hierin wordt inderdaad weinig aandacht besteed aan factoren die de relatie goed moeten houden. De opgestelde reflectie methode zou gedeeltelijk ingebakken kunnen worden in Prince2 of wellicht als aparte methode ernaast kunnen worden gebruikt.

De reflectie methode heeft zeker toegevoegde waarde voor grote projecten met doorlooptijden van meer dan een jaar. Voor het toepassen van de methode worden niet veel verschillen gezien tussen IT projecten en projecten in overige sectoren. De aanpak zou waarschijnlijk ook kunnen werken in andere projecten.

Project start-up

Binnen grote IT projecten van de overheid wordt vaak al een project start-up gedaan. Hierin wordt er ook getracht de project managers goed op elkaar aan te laten sluiten door gebruik te maken van een soort sollicitatiegesprek waarin beide projectmanagers met elkaar praten om te kijken of er een klik is. Het wordt als belangrijk geacht om samen vertrouwen te hebben in een goede afloop van het project. Dit wordt dan ook tijdens dit gesprek besproken.

Om tijdens dit gesprek ook gebruik te maken van testen om het gedrag van elkaar te begrijpen wordt gezien als nuttig voor grote projecten. Hierdoor leren beide project managers hoe ze met elkaar om kunnen gaan.

Naast de relatie tussen de projectmanagers wordt er reeds ook aan de sociale relatie gewerkt tussen beide project kanten door een team building activiteit in te plannen. Dit wordt ook ervaren als zeer nuttig.

Voordat er aan het reflectietraject begonnen wordt, lijkt het verstandig om eerst even goed met elkaar de doelstellingen en verwachtingen van het reflectietraject door te nemen. Dat dit in een aparte sessie gebeurt is prima en benadrukt het belang van dit aspect.

Reflectiesessie

Reflectie kan de openheid en tevredenheid tegenover elkaar verbeteren. Daarmee wordt de kans verhoogd dat de klant tevreden is en dat de doelstellingen van de klant worden behaald. En dus ook dat projecten minder vaak mislukken. Ook aan de eigen zijde van het project zal er een betere sfeer ontstaan doordat er meer duidelijkheid ontstaat.

Het terugkijken op situaties uit het verleden om daarvan te leren voor de toekomst wordt gezien als nuttig. Het zou echter ook nuttig zijn om ook alvast vooruit te kijken naar situaties waarvan je weet dat ze in de toekomst gaan plaatsvinden zodat men zich kan instellen hiermee om te gaan.

Naast het reflecteren en het opstellen van gewijzigde acties voor toekomstige situaties zou het ook nuttig zijn om te evalueren op deze sessies zelf. Dit kan aan het einde van het gehele traject d.m.v een aparte evaluatie sessie. De resultaten van de evaluatie kunnen gebruikt worden door beide organisaties om te leren voor toekomstige projecten.

De frequentie van 4 weken voor een reflectiesessie lijkt goed. Door dit interval aan te houden wordt het normale project proces niet te vaak onderbroken, echter wel vaak genoeg om de relatie in de gaten te houden.

Extra input vergaren

Het vergaren van extra informatie uit het project zelf wordt gezien als nuttig. Naast het gesprek met de projectmanagers samen in de reflectiesessie zou het bijwonen van projectvergaderingen goed zijn om de sfeer te observeren. Ook kan er zo af en toe met project medewerkers gesproken worden. Informatie vergaren bij de stuurgroep lijkt niet nuttig aangezien deze mensen teveel invloed hebben op de project managers van het project en de project doelen. Hierdoor zouden ze wellicht teveel kunnen gaan sturen.

Een dialoog tussen alleen de reflector en een van beide project managers kan nodig zijn om wat vrijer te kunnen praten. Als altijd beide project managers aanwezig zijn zal wellicht niet alles op tafel komen. Het is wel zaak dat de reflector een geheimhoudingsplicht heeft zodat de informatie niet uiteindelijk toch bij de ander terecht komt.

Het vergaren van extra input moet natuurlijk verlopen. Er moet geen vaste frequentie voor worden vastgesteld. Afhankelijk van wat er tegengekomen wordt moet door de reflectoren gekeken worden of het nodig is om extra informatie te vergaren. Het is zeker nuttig om eens langs te gaan zonder dat daar aanleiding voor is.

Rollen

De geïnterviewde heeft het volgende verteld over de verschillende partijen

- **Reflectorrol**

  De rol van de reflector wordt gezien als nuttig. De reflector moet dan wel de functie van facilitator krijgen en niet van adviseur die een rapport op tafel legt en zegt zo moeten jullie het oplossen. Het is dus echt een facilitator en geen adviseur.

  Beide mogelijkheden voor het invullen van de reflectorrol ((1) het invullen van een reflectorteam met daarin 2 reflectoren afkomstig van beide organisaties, of (2) een externe reflector) zijn goed mogelijk en het is goed om deze invulling op de situatie af te stemmen. Wanneer opdrachtgever en opdrachtnemer vaker hebben samengewerkt zal het makkelijker zijn om reflectoren vanuit de eigen organisatie te gebruiken omdat de onderlinge relatie vaak al wat beter is. Bij sommige projecten waar de vertrouwensband nog niet aanwezig is zal een externe persoon wellicht beter werken omdat daarmee de onafhankelijkheid meer wordt gewaarborgd. Het kan dus wellicht een keuze per opdracht zijn.

  Naast het bekijken of de relatie tussen de project managers goed is, is het wel belangrijk dat de reflector ook goed kan omgaan met de projectmanagers. Er moet ook daar een klik aanwezig zijn. Dit zal moeten worden gecontroleerd bij aanstelling van de reflectoren en projectmanagers.

- **Project managers**

  Om reflectie toe te passen is het wel cruciaal dat beide partijen gewillig zijn om hieraan mee te werken. Wanneer dat niet gebeurt, zal reflectie niet de uitwerking hebben die gewenst is. Het is dus zaak dit aan het begin van het project goed te controleren en ook gedurende het project hierop te focussen. Het is daarbij ook belangrijk dat de project managers precies weten waar ze aan toe zijn. De taken van de reflector moeten dus duidelijk zijn.

II   Interview report: Dutch ministry of foreign affairs

Case description

This interview was conducted with a project manager working on projects for a ministry of the central government. He has conducted several large IT projects with throughput times of more than one year. One of the projects that he managed was used as a positive example in the report of the Dutch court of audit (2007a).

Case report (Dutch)

Het ontstaan van conflicten door softe factoren als samenwerking, communicatie, houding en gedrag wordt zeker herkent. Een voorbeeld hiervan is het feit dat er soms mensen zijn die het project expres tegenwerken in plaats van met z'n allen voor het gezamenlijke doel te gaan om een mooi eindresultaat te bereiken.

<u>Huidige situatie</u>

Op dit moment wordt er geprobeerd om dit soort situaties zo snel mogelijk op te pakken nog voordat ze escaleren en leiden tot een conflict. In essentie gaat het er vaak om dat doordat harde factoren zoals het niet goed vastleggen van de scope leiden tot interpretatie verschillen tussen de verschillende partijen op het softe vlak. Er is vaak meer aan de hand dan alleen het softe deel.

Het is prettig als er binnen het project maar 1 project manager is. Dit kan door de project manager van de opdrachtgever boven het project te plaatsen. Door hem bovenaan het project te zitten kan je als opdrachtgever makkelijker sturen. Er is dan natuurlijk nog steeds een relatie met de opdrachtnemerskant waarin het van belang is dat deze goed is.

Wat erg belangrijk is nog voorafgaand aan het project is dat er niet om elk dubbeltje wordt gevochten. Hierdoor heb je voorafgaand aan een project vaak al last van een conflict welke zich gedurende het project alleen maar verder uit kan bouwen. Het is wel eens gebeurd dat het contract nog niet eens getekend was en er al een arbitrage commissie werd opgericht. Als je een goede deal sluit waarin beide partijen tevreden kunnen zijn over wat ze uit het project kunnen halen kun je vervolgens gemakkelijker tot een goed gezamenlijk resultaat komen.

Als project manager is het belangrijk dat je 75 procent van de tijd bezig bent met mensen te informeren en te begeleiden door het project. Bij een aantal projecten die gedaan zijn is het duidelijk wat er bij mensen wel en niet goed gaat. Het is belangrijk dat dit ook direct aan deze mensen verteld wordt zodat mensen hiervan kunnen leren. Mocht het echter fout blijven gaan dan zal diegene van het project verwijderd moeten worden.

Problemen tussen de project managers van opdrachtgever en opdrachtnemer zijn er wel degelijk. Het is echter wel zaak om te proberen 'on speaking terms' te blijven met elkaar. Soms geef je wat meer informatie prijs om daar later weer wat voor terug te krijgen. Je merkt dat als je in een vecht houding komt dat dan de luikjes sluiten en het vertrouwen in elkaar wegvloeit. De ruimte die er dan aan elkaar gegeven wordt om dingen zelf in te vullen wordt dan beperkt. Mensen gaan zich dan veel te veel focussen op wat er in het contract beschreven staat.

Er wordt nu wel al aandacht besteed aan de communicatie tussen project managers. Er is 1 keer per maand een meeting waarin een update wordt gegeven waarin alle betrokkenen aanwezig zijn. Er wordt hier vaak gepraat over hoe het proces is ingericht en hoe dit verloopt. Er zit ook altijd een informele borrel aan het einde. Er wordt nog geen gebruik gemaakt van een sessie die lijkt op reflectie.

Het gebeurt ook dat er af en toe informeel afgesproken wordt om samen tot een oplossing te komen. Het gaat er uiteindelijk om dat er geen twee kampen ontstaan waarin de mensen los van elkaar gaan werken. Het gaat erom dat mensen samen aan het project werken en tot een gezamenlijk resultaat komen waar ze trots op zijn.

De huidige projecten worden vaak gemanaged met een zelf ontwikkelde project management methode gebaseerd op PMBoK. In deze ontwikkelde methode zit een onderdeel wat een goede stakeholders analyse maakt. Dit is belangrijk om te weten wie op welke punten extra aandacht schenkt. Tegenwoordig zie je echter ook steeds vaker dat Prince2 gebruikt word. Dit is ook een prima methode om te gebruiken.

Reflectie methode

Je ziet vaak dat methoden vooral naar de strategische laag kijken. Het goede van deze methode is dat er niet alleen naar het hoger management gekeken wordt maar juist naar de project managers laag. Het is dus goed dat dit zich richt op de wat meer tactische laag en niet alleen op het directieniveau. Daarnaast moet die reflector dan wel kunnen praten met de stuurgroep. Nu is het vaak zo dat het probleem ergens ontstaat, bijvoorbeeld op operationeel niveau en dit probleem wordt omhoog gecommuniceerd richting strategisch niveau. Wanneer het dit niveau bereikt is het vaak al geëscaleerd. Met behulp van reflectie zou zon probleem wellicht al eerder opgelost kunnen worden.

Het reflectie model met de betrokken partijen zou dus wat gelaagder mogen zijn om zo onderscheid te kunnen maken tussen strategisch, tactisch en operationeel niveau binnen een project. Hierdoor heb je een beter overzicht wie er allemaal invloed hebben op het project.

Project start-up

Het is lastig om aan het begin van een project managers van beide partijen aan elkaar te koppelen. Er wordt door de Europese aanbestedingswet enigszins een partij aan je toegewezen. Het ligt dan al vaak vast wie zo'n project aan beide kanten gaat doen en is er dus geen ruimte om deze personen aan elkaar te koppelen. Het kan zijn dat die partij niet zo open staat voor een goede relatie maar dat die veel meer bezig is om veel rendement uit het project te halen.

In de meeste grote projecten wordt er aan het begin altijd gekeken hoe de motivatie van mensen is om het project te doen. Dit gebeurt dan met een gesprek zodat je kan kijken of iemand goed bij het project en de mensen daarin past. Hiervoor zouden ook simpele testjes gebruikt kunnen worden om meer over het gedrag van elkaar te weten te komen, zodat hier rekening mee gehouden kan worden tijdens een project.

Reflectiesessie

Voordat men aan de reflectie begint is er support van top management nodig. Wanneer er geen support is zal het niet gebeuren.

Het is tijdens de sessies wel belangrijk om elkaar duidelijk te vertellen of het wel of niet goed gaat. Het is dus naast de negatieve aspecten ook belangrijk om positieve dingen te noemen.

Als je de spiegel voorhoudt moet je beide aspecten belichten. Als je positieve aspecten ook benoemd komen de negatieve aspecten beter aan.

Gedrurende de reflectie sessies is het ook goed om te kijken naar het op een hoger niveau brengen van aspecten waar in een project niet uit gekomen wordt. De project manager kan deze aspecten dan door het top management in de stuurgroep laten beslissen. Door het bekijken van deze beslissingen, worden ze bijvoorbeeld te vaak of te weinig genomen kan je het project wellicht verbeteren. De reflector zou hier op kunnen letten.

Reflectorrol

De invulling van een reflectorrol is goed als er mensen zitten die verstand hebben van zaken. Ze zouden dan naast de softe kant ook wat meer kunnen letten op het proces. Deze mensen kunnen gebruikt worden om naast problemen ook ideeën aan voor te leggen.

Een reflector zou wel een soort mediator skills moeten hebben. Ook ervaring in de praktijk (IT projecten) is nodig om de projectmanagers goed te kunnen helpen met hun problemen. Hij moet daarin tevens autoriteit hebben en dus gerespecteerd worden in zijn rol.

Zo'n persoon moet er wel objectief in zitten. Hij moet van beide kanten weten wat er speelt en ook wat er in de contracten staat. Hij moet dan ook zelf willen om de projectmanagers te helpen om er samen uit te komen. Ook moet het zo zijn dat de reflector de knoop door kan hakken. Dit zorgt ervoor dat je daar niet vast blijft zitten.

Wat je dan krijgt is een soort meewerkende mediator rol. Je moet deze mensen dan wel op zowel relatie als proces zetten omdat deze twee veel met elkaar te maken kunnen hebben. Het moet geen psychologisch bankzit groepje worden.

Een reflector zou best mandaat mogen hebben om naar het management te rapporteren. In deze rapportages zou duidelijk kunnen worden aan het management of er veel problemen zijn en of deze goed worden opgelost. Wanneer er problemen ontstaan waar beide projectmanagers niet uitkomen zou het hoger management dan wellicht een oplossing kunnen aandragen.

III   Interview report: Large commercial system developer

Case description

This interview was conducted with a project manager working on projects for a large commercial system developer . The interviewee is someone who is often hired to fulfil the role of crisis manager when projects are escalated. He has participated in several projects form the central government.

Case report (Dutch)

Veel problemen die ontstaan op het softe vlak zijn gebaseerd op het ontbreken van harde factoren. In theorie zou het beter vaststellen en communiceren van de harde factoren dus wellicht kunnen leiden tot een vermindering van problemen aan de softe kant. In praktijk blijkt echter dat dit niet altijd zo werkt en de problemen aan de softe kant blijven ontstaan. Hierbij wordt als voorbeeld gegeven dat beide partijen vaak geen gezamenlijk beeld hebben en verwachtingen vaak uiteenlopen.

<u>Huidige situatie</u>

Vooral als het drukker wordt tijdens een project gaan de softe factoren een rol spelen. Probeer in iedergeval te zorgen dat de harde projectfactoren geregeld zijn dan heb je al minder last hebt van problemen met de softe factoren.

Relatie management wordt gezien als een belangrijke eigenschap van een projectmanager. Op dit moment wordt er geprobeerd om mensen te motiveren door de ambitie van mensen te triggeren. Project managers hebben het echter vaak al druk genoeg met het managen van de relaties en processen aan de "eigen" kant van het project waardoor het zo kan zijn dat het managen van de relatie met de andere kant achter blijft. De project managers staan als het ware met hun rug naar elkaar toe. Er wordt nog weinig gedaan aan de relatie tussen project managers onderling.

De grote IT projecten worden vaak gemanaged met behulp van Prince2. Veel mensen ervaren Prince2 echter als bureaucratisch en nemen daardoor ook niet alle aspecten op in de uitvoering. De mensen zijn vaak voldoende opgeleid in prince2, maar zijn niet in machte om het allemaal toe te passen omdat het teveel is. Prince2 wordt ook gezien als een methode welke zich focust op harde factoren. Door gebruik te maken van issue en risk logs worden de projecten gestuurd. Doordat je weet wat er speelt kan je er op sturen. Dit zou ook voor de softe kant van het project kunnen.

Een manier die in de huidige situatie gebruikt wordt om te letten op het proces en de relatie binnen een project is het maandelijks controleren van de beleving van het project. Er wordt dan niet gekeken hoe het project volgens de statistieken gaat maar juist hoe mensen het project beleven. Hierbij kan iedereen vanuit het project bevraagd worden. Echter zijn dit meestal alleen de belangrijkste stakeholders en projectmanagers.

Project managers in IT projecten zijn vaak communicatief iets zwakker ten opzichte van andere projecten. Dit omdat ze vaak als technici beginnen en dan naar boven doorgroeien. Dit is een aspect wat ervoor zorgt dat meer aandacht nodig is voor juist die softe factoren.

De zakelijke relatie wordt naast de invloeden vanuit de zakelijke omgeving ook vaak beïnvloed door persoonlijke relaties. Persoonlijke relaties en zakelijke relaties kunnen door

beide omgevingen sterk beïnvloed worden. Men kan bijvoorbeeld thuis niet lekker in zijn vel zitten en dit meenemen naar het werk of andersom.

<u>Reflectie methode</u>

De behoefte naar een manier om de relatie en daarmee het proces tussen project managers van opdrachtgever en opdrachtnemer te verbeteren wordt zeker gedeeld. In de theorie is het letten op de relatie tussen beide partijen onderdeel van de functieomschrijving van de projectmanagers. In praktijk blijkt echter dat het nog te weinig gebeurt.

De reflectiemethode is in theorie dan ook goed. Echter in de praktijk zal het lastiger zijn om de voorgestelde methode toe te passen. Hiervoor worden een aantal redenen gegeven. Allereerst zal het management niet zomaar geld willen uitgeven zonder dat het weet waar het toe zal leiden. De added value van reflectie is nu nog onduidelijk. Er moet eigenlijk een reden zijn om te gaan reflecteren. Er moet al iets van een strubbeling zijn in het project wil het management overstag gaan om een extra persoon in te huren. Het is dus nodig om beide partijen hier eerst van te overtuigen. Dit zou bijvoorbeeld kunnen door aan te geven dat op basis van resultaten uit het verleden aangetoond zou moeten worden. Dit kan alleen door gebruik te maken van cijfers uit de infrastructurele sector. Anderzijds zouden een aantal publicaties over de methode wellicht helpen om de bereidheid om het toe te passen te verhogen.

Ook hebben projectmanagers in hun functieomschrijving al relatiemanagement zitten. Er wordt dus van ze verwacht dat de ze niet alleen de relatie aan de eigen kant van het project, maar ook de relatie met de andere projectmanager goed houden. In praktijk blijkt echter vaak dat dit niet goed gebeurd. Er zou dus best wat aangedaan mogen worden. Echter, door reflectie toe te passen met een reflector kan het zo zijn dat de project managers zich gecontroleerd gaan voelen. Wellicht dat reflectie ook mogelijk zou zijn zonder gebruik te maken van een reflector. De project managers moeten dan zelf rond de tafel gaan zitten.

De methode is wel een goede aanvulling op project management methoden welke zich focussen op de wat meer harde kant van project management. Een oplossing voor het meer benadrukken van de relatie tussen opdrachtgever en opdrachtnemer zou dan ook zeker helpen om een project soepeler te laten verlopen.

Alternatieve mogelijkheid voor reflectiesessies

Het direct vanaf het begin af aan invoeren van een reflector kan ook een risico zijn. Je gaat gelijk vanaf het begin praten terwijl het in het begin juist nog rustig is. Als er een signaalwerking is waarmee duidelijk wordt dat het niet goed gaat dan zou je een reflector kunnen inschakelen. Er zijn dan twee fasen:

1^e fase: Alleen project managers praten met elkaar, zonder reflector, en ze geven beide een cijfer aan hun relatie. Dit cijfer wordt continu bijgehouden door het top management.

2^e fase: Wanneer het cijfer laag wordt (bijvoorbeeld lager dan een 7) kan het management besluiten om een reflector in te schakelen. Vervolgens kan de reflector de reflectiesessies uitvoeren.

Project start-up

Het is belangrijk dat er binnen een project start-up duidelijk gecommuniceerd wordt wat de doelen en afspraken zijn. Dit wordt nu al gedeeltelijk gedaan binnen de huidige projecten

Het uitvoeren van testen om te kijken of project managers bij elkaar passen zal in de praktijk lastig toegepast kunnen worden aangezien projectmanagers hier waarschijnlijk niet erg positief tegenover staan. Een andere optie kan zijn om de project managers met elkaar te laten "proefdraaien" zo kan je zien of er een klik ontstaat. Dit is onderdeel van de teamsamenstelling van een project. Dit kan al opstarten aan het begin van de project start-up. Wanneer er geen klik is ontstaan kunnen beide partijen er voor kiezen om een andere project manager aan te stellen.

Het is ook nuttig en haalbaar om te praten over gedragseigenschappen van de projectmanagers. Hierdoor kan er door beide partijen rekening mee worden gehouden. Hierbij zou er gebruik gemaakt kunnen worden van bijvoorbeeld de Belbin rollen of kern kwadranten.

Rollen

- **Reflector rol**

    Het invullen van de reflectorrol in de methode van reflectie is lastig. Deze rol zal door het management van beide organisaties aangesteld moeten worden. Het aanstellen van zo'n persoon kan door de projectmanagers gezien worden als controlemaatregel aangezien het relatieaspect onderdeel is van de functieomschrijving van een projectmanager. Hierdoor kan er ook weerstand tegen reflectie ontstaan bij de projectmanagers. Iets wat juist voorkomen zou moeten worden wanneer je de relatie zou willen verbeteren.

    Tevens kost het aanstellen van een reflector weer extra geld. Een extra persoon aanstellen voor een methode waarvan de added value nog niet direct duidelijk is is daarom lastig. Zeker wanneer er twee reflectoren aangesteld worden die vanuit beide partijen gezamenlijk het reflectieteam vormen kost dit twee keer zoveel. Wanneer het toegepast zou gaan worden moet het management er dan ook duidelijk achter staan. Zij zijn degene die het moeten betalen.

    Om de reflectorrol te laten werken zal hij zeer onafhankelijk moeten zijn en door beide partijen samen aangesteld moeten worden. Het is erg belangrijk dat de onafhankelijkheid wordt gewaarborgd. Dit kan ook alleen als beide partijen hier vertrouwen in hebben.

    Wanneer er project managers van beide partijen worden aangesteld om als reflectoren op te treden zal er een training verzorgd moeten worden om deze reflectoren te leren om te gaan met de wat meer psychologische kant van het samenwerken. Dit dus nog naast het relatiemanagement wat de project managers al standaard in hun functieomschrijving hebben.

    Een reflector zou een geheimhoudingsverklaring moeten ondertekenen wil hij goed kunnen functioneren. Dit om ervoor te zorgen dat de er geen aspecten besproken met anderen.

    De stuurgroep moet wel geïnformeerd worden door de reflector. Het management van beide organisaties zal verantwoordelijk moeten zijn voor de reflector. De reflector kan zo af en toe doorgeven aan de stuurgroep hoe het gaat.

- **Project managers**

    Betrokkenheid en bereidheid van de project managers zal erg belangrijk worden om reflectie met een reflector te laten werken. Goed communiceren wat reflectie inhoud is

daarin erg belangrijk. Anders krijg je snel weerstand tegen het geheel en wordt reflectie als controlemaatregel gezien terwijl het bedoeld is als hulpmiddel.

IV Interview report: Large commercial system developer

Case description

This interview was also conducted with someone working for a large commercial system developer . This project manager has participated in different types of projects that are executed by his company. He does not only work on public projects. Private projects are also part of his portfolio.

Case report (Dutch)

Communicatie en rapportage maken nu al deel uit van het projectplan wat in het begin van het project wordt opgesteld. Hierin wordt opgenomen wat, hoe, wanneer en door wie er gecommuniceerd wordt. Hoe de communicatie gaat wordt als zeer belangrijk ervaren binnen projecten die gedaan worden. Het is apart om te zien dat er toch nog steeds conflicten ontstaan ondanks dat je regelmatig informeert en communiceert.

De interpretatie van de scope is vaak een aspect waar het vaak mis kan gaan. Daardoor ontstaan vaak interpretatieverschillen. Vaak ontstaan er ook interpretatieverschillen tussen het management en het projectmanagement aan 1 kant van het project. Dit doordat het management denkt dat iets wel meegenomen kan worden en dit niet goed afgestemd met het project(-management) terwijl dit een hoop extra werk kost.

Project managers praten wekelijks zoniet dagelijks met elkaar om het project af te stemmen. Er is op dat niveau wel altijd een gezond spanningsveld waarin de relatie ook een rol speelt. Nu wordt het proces en de inhoud bewaakt door een quality assurer.

Ook het niet vastleggen van mondeling besproken aspecten komen voor waardoor er interpretatieverschillen ontstaan.

Een goede projectmanagers zal zich tot op een zeker niveau altijd moeten kunnen schikken met de ander. Mocht het dan alsnog niet lukken dan wordt zo iemand soms van het project gehaald.

<u>Reflectie methode</u>

Op zich is de methode zoals die er nu staat duidelijk en bruikbaar. In RUP of DSDM wordt in sommige processen ook al gebruik gemaakt van een facilitator die let op het proces. Zo'n rol zou dus best kunnen werken.

De methode is nuttig en ook haalbaar in de praktijk als men maar wel vanaf het begin af aan bezig is met die relatie en dat men er open voor staat. Het zal vooral in de publieke sector kunnen werken aangezien mensen daar meer open staan om te kijken naar de softe kant van een project en niet alleen te focussen op harde factoren. Al is een verandering hierin zichtbaar. In de financiële sector zal dit minder goed ontvangen worden.

Project start-up

Op een project krijg je niet altijd de mensen op je project die je zou willen hebben. Je wil graag mensen bij elkaar zoeken en kijken of er een klik is. Een matching aan het begin zou wel erg goed zijn maar is dus niet altijd haalbaar. Er zijn nu wel al tools (gebaseerd op belbin) beschikbaar en deze worden zo af en toe gebruikt om mensen te matchen. Dit gebeurt dan echter vaak aan een kant van het project en niet zozeer tussen de opdrachtgevers en

opdrachtnemers kant. Nu wordt er vaak wel geselecteerd op basis van een gesprek tussen de project managers van beide kanten.

Het zou zeker nuttig zijn om te kijken naar het gedrag van elkaar om zo elkaars allergieën te ontdekken. Dit wordt soms wel eens gedaan doormiddel van de gedragstest "de roos van leary". Wanneer men elkaars allergieën ontdekt kan hier wellicht rekening mee worden gehouden om zo elkaars gedrag op elkaar af te stemmen. Het is echter lastig om alle mensen bereid te krijgen. Zeker omdat het dan vanuit beide organisaties gedragen moet worden.

Er wordt om team spirit te creëren altijd een kick off opgezet. Soms met een uitje, maar meestal met een meeting.

Reflectiesessies

Proces is onlosmakelijk verbonden met de relatie. Door situaties die gedurende het proces plaatsvinden kan de relatie beïnvloed worden. Maar ook andersom, als de relatie verslechterd kan het proces vertraagd worden. Het zou dan ook verstandig zijn om de reflectiesessies ook gedeeltelijk over het proces te laten gaan. Op het eerste gezicht lijkt het nu alsof je tijdens zo'n sessie met een psycholoog moet gaan praten. Dit alleen zal niet goed ontvangen worden door de project managers en dan ook niet werken.

Het is wel zo dat door met elkaar over het proces en de relatie te praten je meer lol in het project kan krijgen. Daardoor heb je een stimulans om samen een goed product af te leveren. Je wilt een gevoel creëren dat je samen ergens aan werkt en niet het gevoel krijgt dat iemand je tegenwerkt.

Er zou tijdens een reflectiesessie met de project managers gepraat moeten worden en vanuit een niveau lager, bijvoorbeeld project leiders, zou je de mensen kunnen bevragen om te gebruiken als input voor de reflectiesessies. Het zou handig zijn om iedereen mee te nemen in zo'n gesprek die client facing is.

Het gebeurt nu ook wel dat er zo af en toe wat meer informeel gesproken wordt naast het project. Zo is het bijvoorbeeld wel eens voorgekomen dat de project manager samen met de counterpart een avondje uit is geweest om de relatie te verbeteren.

Het is belangrijk dat je regelmatig elkaar informeert over de voortgang van het project. Dit gebeurt nu vaak per mail en dit wordt ervaren als minder prettig. Wanneer dit mondeling gebeurt wordt dit ervaren als veel prettiger.

Een reflectiesessie waarin niet alleen op gedrag gelet wordt, maar waarbij ook het proces van het project meegenomen wordt, zou best bij kunnen dragen om interpretatieverschillen minder vaak voor te laten komen. Het is denk verstandig dat de reflectiesessies niet alleen over de relatie gaan maar ook over het proces van het project. Dus in hoeverre mensen acties ondernemen om het proces op gang te houden. Want, als mensen gewoon een proces volgen, waarom komen ze dan niet tot een resultaat waar ze beide tevreden over zijn. De communicatie, de houding en het gedrag tussen mensen heeft daar zeker iets mee te maken.

Extra informatie vergaren

Door ook met mensen lager in de hiërarchie dan de project managers te praten kan je veel informatie vergaren over het de sfeer in het project is. Ook het observeren door een middag tussen het project team te gaan zitten zal goed werken om informatie over het softe factoren binnen het project te verkrijgen.

Ook het bijwonen van projectmeetings heeft nut om informatie te verzamelen om te gebruiken

Rollen

- **reflector**

  De reflector zal iemand moeten zijn die het gesprek tussen de project managers faciliteert. Hij zal daarbij moeten observeren maar hen ook moeten bevragen en hen helpen. Tevens kan de reflector rapporteren aan de stuurgroep of het goed gaat om zo ook sturend op te treden.

  De optie waarbij er twee personen reflecteren in een team (een van elke organisatie) is een interessante welke waarschijnlijk zorgt voor minder weerstand. Deze optie kost echter wel meer geld dan een externe reflector. Tevens zullen personen van binnenuit de organisaties een training moeten krijgen in het letten op de softe factoren om ze te kunnen ontdekken en om er wat nuttigs over te kunnen zeggen.

  Een externe reflector kan deze skills al hebben maar die heeft wellicht minder ervaring en daarmee autoriteit waardoor zijn rol door de project managers minder snel geaccepteerd wordt.

  Het is wel makkelijk als de reflectoren vakinhoudelijke kennis hebben zodat ze weten wat voor problemen er kunnen ontstaan. Ervaring binnen het managen van projecten is dus wenselijk.

  Ook is het belangrijk dat er ook een klik ontstaat tussen de reflector en de projectmanagers. Dit kan aan het begin van het project worden gecontroleerd.

- **Project managers**

  De project manager moeten wel bereid zijn om te reflecteren. Ze moeten zich aan het begin van het project committeren aan reflectie zodat ze naast het vergroten van de chemie ook een kwaliteitsdoel hebben. Dit kwaliteitsdoel zal dan bijvoorbeeld het behouden van een goede relatie met een cijfer hoger dan een 7 kunnen zijn. De reflector zal rapporteren aan de stuurgroep of dat kwaliteitsdoel gehaald wordt.

  Daarnaast moeten de projectmanagers hun eigen soft skills willen ontwikkelen en moeten ze samen bereid zijn het project naar een hoger niveau te tillen.

Toepasbaarheid

De methode zou goed naast Prince2 gebruikt kunnen worden. Naast horizontale reflectie die hier wordt weergegeven waarin de project managers van beide kanten reflecteren zou reflectie ook verticaal toegepast kunnen worden. Verticaal is hier het reflecteren tussen de project manager en het project team aan een kant van het project.

V   Interview report: Large commercial system developer

Case description

This interview was conducted with an IT architect who also acts as IT project manager. Several large IT projects contracted by the central government have been conducted by the interviewed project manager. One example is the implementation of the system for the social security number.

Case report (Dutch)

Er wordt door de geïnterviewde gezien dat het goed houden van de relatie in een project het project zal verbeteren. De softe kant is dus zeker van invloed. Door te weinig aandacht hier kan het ervoor zorgen dat er van de gewenste oplossing afgedreven wordt. De gewenste oplossing is vaak een compromis tussen opdrachtgever en opdrachtnemer. Naast de harde factoren is het focussen op die softe kant een van de zaken waarop gelet zou kunnen worden om het project te verbeteren.

In overheidsprojecten is ook de politieke druk een belangrijk aspect voor het welslagen van een project. Door politieke invloeden kan de besluitvorming stroperig of ondoorzichtig worden.

Probleem in de relatie is vaak dat er verschillende typen mensen met verschillende denkwerelden op een project zitten. Aan de opdrachtnemerskant zitten vaak wat meer techneuten. Daar moet gedurende het project wel mee omgegaan kunnen worden. Het is zeker belangrijk als men begrijpt hoe beide partijen werken en wat men prettig werken vindt. De relaties moeten niet alleen op projectmanagerniveau goed zijn maar op alle niveaus die praten met vertegenwoordigers van de klant, en uiteindelijk natuurlijk overal in het project. Een goede relatie bij de projectleiders en teams begint echter wel bij een goede relatie tussen de projectmanagers.

Er wordt op dit moment niet heel erg bewust met de relatie tussen de opdrachtgever en opdrachtnemer omgegaan. Er wordt weinig aandacht aan de relatie besteed, veel meer aandacht wordt gegeven aan de inhoudelijke kant van het project. Ook voorafgaand aan het project zou het helpen om de relatie te versterken om hier profijt van te hebben tijdens het project.

Vaak begint een project al met wantrouwen vanuit de opdrachtgever. Dit is vaak te verklaren doordat er geen inzicht is in de processen van de opdrachtnemer. Openheid en begrip opbrengen om elkaar beter te begrijpen zou in een project zeker helpen om het proces te verbeteren.

<u>Reflectiemethode</u>

De toegelichte reflectiemethode zou zeker kunnen werken. In projecten wordt nu af en toe al gefocust op de relatie. Dit gebeurt doormiddel van goede gesprekken tussen de projectmanagers of zo af en toe een informeel uitje. Een formele methode wordt nog niet gebruikt.

Nu wordt er in grote IT projecten ook wel eens gewerkt met workshops. Hierin worden dan dingen besproken als: hoe zijn we hier gekomen en hoe gaan we verder en hoe zouden we slimmer en efficiënter kunnen samenwerken. Dit wordt dan vaak op zowel inhoudelijk, relationeel als procesvlak gedaan. Tijdens een workshop kan het vaak op een wat meer

informele manier. Juist dat het ook op een wat meer ontspannen manier kan, is vaak erg prettig om het project proces te verbeteren. Een voorbeeld waarbij dit ook gebeurde was het burgerservicenummer project.

Het is echt heel belangrijk dat beide projectmanagers positief staan tegenover het hele reflectieproces. Wanneer ze het nut er niet van inzien of er geen zin in hebben zal het zeer lastig worden om het reflectieproces tot stand te brengen. Er zal daarom ook voorafgaand aan de reflectiesessies goed met de projectmanagers gecommuniceerd moeten worden

Voorafgaand aan het project

Een project start-up is belangrijk om tot een goede relatie te komen. De bemensing van een project is vaak wel een gegeven dus daar kan niet veel meer aan gedaan worden doormiddel van het uitvoeren van tests om ze bij elkaar te matchen.

Wel kan je mensen duidelijk laten maken welk gedrag ze prettig en minder prettig vinden zodat daar door de ander rekening mee gehouden kan worden. Er moet hier echter wel opgepast worden aangezien beide projectmanagers wel hun eigen competenties hebben. Als er wordt gekeken naar welke allergieën men heeft dan moet dit wel door beide partijen ondersteund worden. Ze moeten het er beide mee eens zijn dat het gebeurt. Het letten op dit soort aspecten kost echter geld en zijn dan ook vaak dingen waar nu op bezuinigd wordt.

Om de teamspirit te vergroten is het houden van een uitje altijd goed. Dit wordt ook op dit moment al wel gedaan.

Gedurende het project

Tijdens goede projecten word naast de voortgang ook wel eens de relatie tussen beide partijen, ook met de stuurgroep, besproken. Echter, in het merendeel van de projecten wordt daar tijdens de stuurgroepvergadering geen aandacht aan besteed.

Op dit moment gebeurt het weinig dat er over de relatie en het proces gesproken wordt aangezien de projectmanagers druk bezet zijn. Wat je dan vaak ziet is dat die terugkoppelmomenten het eerste is wat sneuvelt. Er zal dan ook zeker tijd ingericht moeten worden voor een sessie om de relatie te bespreken. De sessies moeten dan ook van te voren ingepland worden.

Het is belangrijk dat als je met elkaar spreekt dat je dan zowel positieve als negatie aspecten bespreekt. Focus op positieve punten vergoot het feit dat negatieve punten goed overkomen.

Een aantal van de aspecten die worden beschreven in de reflectiemethode zouden natuurlijk al standaard tijdens een project moeten gebeuren. Deze worden echter niet uitgevoerd vanwege tijdsdruk of vanwege het feit dat men gewoon verwacht dat het goed gaat, terwijl dit in praktijk niet het geval is.

Je hebt een goede kans op succes als er op project managersniveau gemakkelijker informeel contact kan plaatsvinden. Reflectie draagt hier zeker aan bij.

Reflectiesessies

Het uitvoeren van reflectiesessies kan zeker bijdragen aan het succes van een project. Echter zijn er naast deze factoren natuurlijk ook nog een hoop andere invloeden die daarop inspelen.

Om de reflectiesessies te laten slagen is wederzijds begrip naar elkaar wel een vereiste. Ook moeten beide partijen ervoor open staan en informatie tussen beide partijen moet transparant kunnen overvloeien.

Het moet duidelijk zijn wat het doel van zo'n sessie precies is. Het is daarin goed dat je tijdens zo'n sessie niet over de inhoud hoeft te praten maar juist bespreekt hoe de onderlinge relatie en het proces van het project verbeterd kan worden. Er zou ook goed besproken kunnen worden wie er binnen het project nou met wie communiceert en hoe dat precies moet gebeuren.

Het uitvoeren van zulke sessies zal de ene keer meer opleveren dan de andere keer. Dit doordat er verschillende persoonlijkheden binnen projecten zijn en dat er de ene keer meer situaties voordoen die besproken moeten worden dan de andere keer.

De sessies zullen zeker periodiek ingepland worden om zo te zorgen dat er geen druk op de sessies gezet wordt in de trant van: "we moeten nu echt weer met elkaar praten want anders gaat het niet goed". Door het periodiek te in te plannen hou je naast de negatieve aspecten ook tijd over om juist de positieve aspecten te bespreken. Het interval van ongeveer 4 weken lijkt goed om te zorgen dat er nadrukt op reflectie blijft.

Het management heeft zeker invloed op het welslagen van reflectie doordat zij beslissen of er geld vrij gemaakt voor deze alternatieven. Naar het management dat boven het project staat zou uitgelegd kunnen worden dat wanneer het drukker wordt in het project mensen minder goed gaan communiceren. Dit kan voor problemen zorgen. Door deze problemen al vroeg op te pakken heb je dan ook een soepeler project. Het heeft dan zeker toegevoegde waarde.

De reflectiemethode met reflectiesessies zou prima naast Prince2 gebruikt kunnen worden of gedeeltelijk Prince2 opgenomen kunnen worden.

Extra informatie vergaren

Het is belangrijk dat als je vanuit de rest van de organisatie informatie onttrekt, dat de projectmanagers daarvan op de hoogte zijn. Normaal gesproken is het de taak van de projectmanagers, dus zou deze informatie al beschikbaar moeten zijn. Echter kan het nuttig zijn om eens te observeren om zo te kijken of de beelden van de projectmanager overeenkomen met die van de projectteams. Het is dan wel zaak dat dit aan beide kanten van het project gebeurd, om hiermee de onafhankelijkheid weer te waarborgen. De frequentie van deze sessies kan aangevoeld worden door de reflector. Ook het zo af en toe bijwonen van een projectvergadering kan helpen om te observeren wat er in het project allemaal speelt.

Reflectorrol

Eigenlijk zouden beide partijen er zonder reflector al uit moeten kunnen komen. Wellicht dat het ook een optie is om het gesprek zonder reflector te doen in situaties waar weinig geld beschikbaar is. Het is dan zeker zaak dat beide partijen gezamenlijk willen reflecteren. Er is dan ook niemand aanwezig die hen hierin assisteert.

De reflectorrol zou iemand moeten zijn die een soort van mediator rol invult. Het is belangrijk dat hij in iedergeval onafhankelijk is. Ook zou de reflector vertrouwd moeten zijn voor beide projectmanagers zodat er open gesproken kan worden in de sessies. Tevens moet hij begrijpen wat het probleem van een projectmanager van een IT organisatie is dus daar enigszins ervaring mee hebben. Hij moet met ITers om kunnen gaan en ook enige

ervaring hebben met het projectmanagementschap. Het invullen van de rol van reflector door twee personen, een van beide organisaties, zou dan zeker kunnen werken mits deze twee personen goed samen zouden kunnen werken.

De taak van de reflector is om het gesprek op gang te houden. Hij mag best wat advies geven om iets te doen of uit te werken, maar het moet juist niet het geval zijn dat hij gaat voorschrijven wat de projectmanager moeten doen.

Uiteindelijk zou de reflector ook kunnen rapporteren aan de stuurgroep om zo ook naar het management uitleg te geven hoe het ermee staat. Het is daarin wel duidelijk dat de projectmanagers dan weten wat en in welke situaties er gerapporteerd wordt.

VI   Interview protocol

This appendix shows the used interview protocol (in Dutch) during the interview sessions held with the selected interviewees.

Heeft u er bezwaar tegen dat dit gesprek opgenomen wordt?

1. *Hoe wordt er binnen uw huidige opzet van projectmanagement aandacht besteed aan softe factoren als communicatie, samenwerking, houding en gedrag?*

   a. *Heeft u voorbeelden van situaties waarin de relatie niet lekker liep? Hoe kwam dat? Wat heeft u daaraan gedaan?*

   b. *Ziet u het letten op deze factoren als belangrijk voor het verbeteren van het project proces? Waarom wel? waarom niet?*

2. *Aandachtspunten per project stap*

Stap A – Project start-up:

   a. *Wat is in uw ogen de toegevoegde waarde van een project start-up?*

   b. *Heeft u deze eerder uitgevoerd?*

   c. *Wat gebeurt er nu om te zorgen dat de mensen in het team goed bij elkaar passen? Samenstelling team?*

   d. *Wordt er nu al teamspirit gekweekt aan het begin van een project? Hoe?*

   e. *Wie zou u betrekken in deze stap?*

Stap B – Intake sessie

   a. *Denkt u dat het nodig is om voorafgaand aan het reflecteren door te spreken wat reflectie inhoud?*

   b. *Wie zou u betrekken in deze stap?*

   c. *Wat zou u toevoegen aan deze stap?*

Stap C – Reflectie sessie

   a. *Wat gebeurt er op dit moment gedurende het project om op de relatie te letten tussen de project partners?*

   b. *Wat vindt u van het idee om reflectie sessies te gebruiken?*

   c. *Met welk interval zou u een reflectiesessie herhalen waarin men samen het relatieproces bespreekt?*

   d. *Hoe zou u de rol van reflector indelen?*

      - *[A] Als reflectieteam, bestaande uit twee personen, een vanuit beide partijen*

- *[B] Externe partij*

e. *Hoe ziet u de taken van een reflector? Alleen faciliterend of meer als adviserend/ sturend? In hoeverre zou een reflector zich ook met de inhoud moeten bemoeien?*

Stap D - Extra informatie vanuit het project

a. *Wie zou u betrekken bij het verzamelen van extra informatie over het project proces?*

- *Stuurgroep meetings? Project meetings? Een op een gesprekken met medewerkers?*

b. *Zou een dialoog tussen de reflector en of de opdrachtgever of de opdrachtnemer bij kunnen dragen om informatie te vergaren die in een gezamenlijk gesprek niet boven water komt?*

c. *Welke frequentie denkt u dat handig is voor deze stap?*

3. *Denkt u dat de methode een positieve invloed heeft op de samenwerking tussen opdrachtgever en opdrachtnemer? Waarom wel? Waarom niet?*

4. *Hoe denkt u dat er wordt omgegaan met reflectie wanneer het drukker wordt in een project?*

5. *Zijn er specifieke zaken die voor een IT project gelden, waarmee de methode rekening zou moeten houden?*

6. *Welke project management methode gebruikt u?*

a. *Hoe zou deze reflectie methode gebruikt kunnen worden in combinatie met uw huidige project managent methode?*

7. *Zou u de (eventueel aangepaste) methode toe willen passen? Zo ja, waarom?*

a. *Denkt u dat de toegevoegde waarde door het management wordt ingezien?*

8. *Zijn er nog andere dingen die ik niet gevraagd heb, maar waarvan u wel denkt dat ze relevant zijn in kader van mijn onderzoek?*

Ik wil u hartelijk bedanken voor uw tijd en moeite.