# Techno-Anthropological Project Management A Case Study of Project as Practice at Aalborg Renovation



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### Abstract:

This report summarises a Master's thesis at the study programme of Techno-Anthropology. The project is undertaken in collaboration with the public waste collection unit Aalborg Renovation. The overall theme of the project is project management. The study has been focusing on gathering experiences from a large project, "Aalborg uden affald" where Aalborg Renovation is deeply involved. Here fieldwork has been undertaken from inside the organisation. The project takes its methodological standpoint in ethnographic and participatory methods and uses theoretical inspiration from theories on Projects-as-Practice, Actor-Network Theory, and a frameon Techno-Anthropological work competences. The report concludes, that socio technical approaches should play an important role in several project management activities in public sector organisations, and develops a framework for Techno-Anthropological project management through a discussion on seven project management activities that the Techno-Anthropologist should be able to undertake.

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# Preface

This report is a Master's thesis written by Christian Møller Jensen, student at the Masters programme Techno-Anthropology at Aalborg University. In this connection, I want to direct a special thanks to all employees at Aalborg Renovation for making me feel welcome and consent to participating in interviews and workshops. Furthermore, I want to thank fellow students for participation in discussion on my topic. Finally, I want to thank Lone Stub Petersen, for feedback and supervision through the project.

Aalborg University, 2. June 2017

# Abstract

This report summarises a Master's thesis at the study programme of Techno-Anthropology. The project is undertaken in collaboration with the public waste collection unit Aalborg Renovation. The overall theme of the project is project management. The study has been focusing on gathering experiences from a large project, "Aalborg uden affald" where Aalborg Renovation is deeply involved. Here fieldwork has been undertaken from inside the organisation. The project takes its methodological standpoint in ethnographic and participatory methods and uses theoretical inspiration from theories on Projects-as-Practice, Actor-Network Theory, and a framework on Techno-Anthropological competences. The report concludes, that socio technical approaches should play an important role in several project management activities in public sector organisations, and develops a framework for Techno-Anthropological project management through a discussion on seven project management activities that the Techno-Anthropologist should be able to undertake.

# Chapter 1

### Introduction

This primary focus of this thesis is project management. Its looks at project management in the literature, but above all explores it in practice. It is about getting in touch with project management as a student on the Master programme of Techno-Anthropology, to get experience and insight for future employment and to bridge the learned theory and methods with practice. To be able to experience practice, one must first narrow down the scope of study and the field for experiencing practice. The first scope of this project is project management in practice in a public sector organisation. Here, Aalborg Renovation is the studied organisation. Aalborg Renovation is the municipal waste collection unit and is responsible for waste collection in Aalborg Municipality. Aalborg Renovation is part of Department of Sustainability and Energy Administration.

Even though project management (hereafter PM) is a practical discipline, it can be seen as a specific "scientific field" or a sub-field in management research best described as "fragmented adhocracy". As PM research finds its perspectives in many disciplines and rational approaches, there is the need for a pluralistic understanding of PM. This approach suggests that if managers have a wide variety of management tools, they are more likely to succeed, just as theorists are more likely to succeed if they have a variety of theoretical tools. By this logic, it is beneficial to have a pluralistic approach to PM research (Söderlund, 2012). Sönderlund processes the different theoretical foundations in the search for a pluralistic approach to PM research. The four main theoretical foundations are: perspective, project, problem and process. 'Perspectives' is important in order to understand that a sub-discipline like PM draws its perspectives from many disciplines, while the project foundation attributes a focus on project types and typologies as being important (Söderlund, 2012). As multiple disciplines are involved, it will be fruitful to compare a PM study to the competence of an interdisciplinary Master program such as Techno-Anthropology. As well as with the this discipline, one shall lay focus on describing the type of project studied and being aware of the typology the studied project belongs to. 'Problems' focuses on what type of problems the research aims to overcome in PM research, where the problem of cooperation and coordination are common problems that, according to Söderlund, should be considered as intertwined. Lastly, 'processes' focuses on the dynamics and project phases and typically emphasises the importance of focusing on contextual settings (see e.g. Kreiner (1995)). Christensen and Kreiner (1994) discusses the phases of the project in relation to turbulent organisations. Here, project phases are never really the same and therefore other perspectives should

be in focus in order to steer through the different project phases. In short, in the phase of setting goals, the focus should be changed from precision to motivation, in the phase of planning, the focus should change from realism to symbolism, there should be a change from steering to exploring in the execution phase, and lastly there should be a change from justice to strategy in the evaluation phase.



Figure 1.1: Public sector project management triangle by Rybirk (2015: p. 30)

Rybirk (2015) describes PM in a public sector organisation (organisations such as Aalborg Renovation) as very different from a classical understanding of projects. This is first of all because disagreement is a condition in the organisation, making things. Projects in the public sector organisation are designed to appeal to all and therefore it is not always the most rational and economical solutions which is chosen. The project manager should therefore be able to handle uncertainties, unpredictability and the fact that the criteria for a successful project are always discussable and never concrete. In order to handle these uncertainties, the project manager therefore should be able to master a dialogue with actors and stakeholders and be transparent in the process (Rybirk, 2015). Tryggestad (2014) describes the Scandinavian School traditions in PM research with a focus on context and with detailed descriptions of what happens in practice. This gives insight into the complexity of project work. Here especially, projects that include innovation and organisational change are characterised by unique tasks and uncertainties. There are many examples of best practice approaches as presented in handbooks for PM such as A guide to the project management body of knowledge (Project Management Institute Staff, 2008). Rybirk (2015) shows examples of these with a focus on public sector organisations. He argues that the focuses in PM are especially important for political organisations because they have been, and are still going through, massive changes, relying on project work as the practice for these changes. According to Rybirk (2015), a focus on power has not been part of the PM literature, but is an important perspective to notice when discussing PM in political organisations. He frames the important perspectives in PM by visualising a project triangle and points out that besides looking at the classical themes of quality, actors and time, one must also look at the underlying themes in the project work, such as power, learning and steering (see figure 1.1).

As the best practice approaches are built up on standardised ways of executing PM, the approaches are developed from a point of view where more complex decisions and reflections are part of higher management's responsibility and not the project manager's. Therefore, the project manager is reduced to a practical tool on execution that should only worry about achieving project goals. But instead of a focus on uncertainties and risk management in projects, the project manager should be more focused on understanding the complexities and learning about the project during the project execution and learning to live the right way, with uncertainties (Tryggestad, 2014). This is a discussion on different perspectives for PM and what the different approaches emphasise. It is, among other themes, a discussion between exploration of project complexities, e.g. by using more sociotechnical approaches with inspiration from theories as Actor Network Theory (see e.g. (Er et al., 2013)), and on the other hand more strict models with a focus on execution as Prince 2 (see e.g. Turley (2010)).

### **1.1 Case Description**

Aalborg Renovation is the municipal waste collection unit and is responsible for waste collection in Aalborg Municipality and part of Department of Sustainability and Energy Administration. Aalborg Renovation is divided into three departments: Project and Development, Operations and the Secretariat (see appendix A). Operations consist of 100-130 employees depending of the season; these are mainly refuse workers. The secretariat consists of different kinds of 18 administrative workers working with salaries, citizen requests and accounting. Project and Development consists of four project workers and project managers. They work with projects such as new collection schemes and buried waste containers.

Project and Development and Aalborg Renovations as an organisation are deeply involved in the implementation of the municipal strategy "Aalborg uden affald 2014-2025". This emanates from the national strategy "Danmark uden affald". Here, initiatives such as new collection schemes, new waste sorting plants and dialogue with citizens and businesses are expected to increase the recycling of everyday waste from 22 % to 50% on a national level (Miljøstyrelsen, 2013). Aalborg Renovation are an important player in the implementation of "Aalborg uden affald", especially in the implementation of new waste sorting schemes with a focus on the collection of plastic, metal, small electronics, garden waste, household refuse and organic waste. By the notions of typologies by Söderlund (2012), the "Aalborg uden affald" project can be characterised as a large project in an inter-organisational setting where different departments are involved. The project is divided into five sub-projects: information, IT, public procurement, collection - sorting and deposition and buried waste containers. Figure 1.2 visualises the project organisation established for Aalborg uden affald". All project managers apart from the project manager in information are employed at Aalborg Renovation. Above the sub-project and their representing project managers, a project manager has been established as the coordinator for the whole project. He coordinates activities and agreements a cross sub-project and reports above to the waste coordination group representing Department of Sustainability and Energy



Figure 1.2: Diagram of project organisaiton, "Aalborg uden affald"

Administration. Due to the study of PM, I had made the arrangement of working as an assistant to the project manager of the IT project, meaning that this study takes its primary experience from this project, but in relation to the other projects as well. The IT project was established in order to support the administration of the new collection schemes and to ensure that Aalborg Renovation will meet third wave demands from Digitaliseringsstyrrelsen<sup>1</sup> (Aalborg Renovation, 2016).

To ensure the delivery of these demands, a new administration system is set to be implemented. This system is named RenoWeb and is delivered by Sweco A/S and developed for waste disposal administration, aiming to ease working procedures for administrative workers, refuse workers and citizens. RenoWeb was mainly purchased to support Operations and the Secretariat. Refuse workers can access the RenoWeb modules RenoMobile and RenoTrack through an application on a smartphone or iPad. The main system, RenoWeb, can be accessed through an internet browser, where office workers can handle administrative tasks, plan collection routes and follow operations in the field. On the refuse truck, registration and weight equipment are mounted. This ensures registration every time the refuse worker empty a container. The IT project has been established to implement the RenoWeb system. The implementation is divided into three phases, based on the new waste collection schemes. Phase 1 focuses on collections schemes for plastic, metal and small electronics, phase 2 focuses on household refuse and phase 3 focuses on business solutions and big containers.

### 1.2 Background

The introduction and case description shows a focus the project manager experienced from the position as a PM assistant to the IT-implementation project. This role has evolved for me, first with work as a student worker, later on as an intern on phase one of the IT-implementation and now as a Master's student and PM assistant during this project. My experiences from the former project as an intern have framed the focus of this study and support the need for a study of PM in practice at Aalborg Renovation. The previous project had its focus on how to create a sense of

<sup>&</sup>lt;sup>1</sup>The digital strategy 2011 -2015 is divided into four waves., where number three focus upon self-service solutions that ensure citizens and businesses can access public services digitally (Regeringen / KL / Danske Regioner, 2011)

"ownership" in relation to the RenoWeb system among refuse workers. The previous study was done with inspiration from the concept of *vision* with help from Senge (2003) and his shared vision in an organisational learning perspective. Furthermore, Kotter (1999) and his focus on vision as a tool for change management was included. I have now come to the understanding that what I was seeking is better described by the concept of *cura* connected with PM by Henriksen (2011). By the concept of cura, he binds the concepts care, solicitude and concern together and discusses these perspectives in relation to the creation of cura among workers in an organisation. Here the PM paradigms and a classical rational practice are discussed with the aim of showing us that the social aspects of PM must be considered in order to achieve success with cura in PM and thereby achieve success with the project. Therefore, PM should "change from the rational paradigm to a much more complex and dynamic perspective. This means that the linear conception should be replaced by complex understandings" (Henriksen, 2011: p. 104).

The results from my former project showed a need for a more complex understanding of PM in the project work at Aalborg Renovation. The result showed that the project must lay more focus on the existing working procedures and agreements with refuse workers. These must have a special focus because these are in conflict with the future use of the system. Furthermore, the results showed that a focus on participatory methods during the implementation of the system was fruitful to the sense of ownership (cura) and willingness to be a driver in changing working procedures. Furthermore, the project described some recommendations for future implementation with the aim of having a focus on a sense of ownership (cura) among staff. These were: a more systematic focus on involvement of the end-user during the implementation, a focus on dialogue within the project organisation and to use the tool of visions as a management tool to avoid sub-projects creating obstacles for each other, which can be related to the coordination and corporations problem as mentioned by Söderlund (2012). The problem stated here, combined with the above notions from Henriksen (2011), set an agenda for a more complex understanding in PM.

The complexity that is present in such technology projects as "Aalborg uden affald" and the IT project can be discussed with the introduction of a Techno-Anthropological technology literacy. Techno-Anthropologists, as myself, do not understand technology only as the physical artefact but as something more. This has been summarised by Botin and Børsen (2013) in their introduction to Techno-Anthropology. Here they describe how

"(...) technologies are in the making, and continuously re-shaped and re-configured. They are multi-stable and can be used. Their appearance are influenced by a number of factors. They give rise to intentional uses, new uses, dual uses, misuses, and abuses. Technologies create new needs. Technologies reflect interactions between human, culture, and artifacts as well as designed procedures. They are related to learning mastering-skills and responsible conduct. Technologies give rise to dystopian or utopian visions for the future, maybe because power relations, politics, values and visions are intrinsic elements, or because they generate risks and risks perceptions. Technologies mediate reality, and are sometimes seen in contrast to nature, and sometimes as natural. They shape what is means to be human" (Botin and Børsen, 2013: p. 8).

The academic profession of Techno-Anthropology is established with a desire to educate candidates who can handle the complexity of technology in practice and thereby bridge the gap between human and technology. Børsen (2013) frames this, by describing Techno-Anthropological core competences. Here *interactional expertise* describes competences to bridged understandings between technology experts and users and/or stakeholders. *Anthropology-driven design* describes the ability to bring together perspectives from stakeholders and users into the actual artefact or product. Lastly, social responsibility competences describe the ability to include ethical and responsibility reflections in relation to technology, development, implementation and evaluation (Børsen, 2013).

I argue that binding these notions of holistic technology literacy and competences for handling the technology complexity, together with the PM competences and experiences with PM in practice, would bring valuable knowledge on how PM could be practised in order to handle complex technology projects. In support of this statement, we see a trend or even a political agenda for political organisations as Aalborg Renovation. (Bason, 2010) shows us how public sector innovation, despite not being a new thing on the political agenda, is still not truly incorporated into Danish political organisations. Public sector innovation has become an agenda on the political scene due to challenges in, for example, climate change and demographic changes, mixed with an expectation of the public sector to "increase its productivity and utilises taxpayers' resources as efficiently as possible (...) meet the ever-increasing demands of a wealthier population for greater choice and quality in public services" (Bason, 2010: p. 12). Therefore new solutions are needed in order to set the agenda of public sector innovation represented by the creation of The Danish National Centre for Public Sector Innovation (Regeringen, 2015). "Public leaders must find better ways to institutionalise innovation, setting up the structures and processes and building the capacity that effectively embed innovation as a core activity in the organisations they run" (Bason, 2010: p. 8). These new ways are very much related to concepts of co-creation, both with employees and citizens:

"Co-creation anchors the creative process with the people it concerns, whether they are the IT developers in the neighbouring office (whose commitment might be crucial to getting a new programme operational on time), or the citizens who will ultimately use the new services (who can help us understand how the new solution would work in their everyday lives). Such anchoring greatly enhances the possibility of ultimate success" (Bason, 2010: p. 9)

Many organisations are not a suited for innovation, and are instead focusing on internal administrative processes instead of focusing on creating improvements for society. Furthermore, new technology is often costly and benefits are difficult to assess while the citizens expect the government to be in front in taking up new technology (Bason, 2010). Combining these notions on innovation, there is a need to re-think PM in technology projects and the way technology is looked upon in PM activities. This to ensure that complex factors such as the changes of existing work procedures to new technology practices will succeed, with improvements for both the internal organisation and the citizens affected by the new waste collection schemes.

### **1.3 Scope of Report and Problem Statement**

The previous introduction, case description and background have introduced a focus on PM in practice in the context of a public sector organisation. The case for the study is Aalborg Renovation, which is deeply involved in the project "Aalborg uden affald", the type of project which we can describe as a large public sector project. Previous studies following the sub-project of IT implementation have shown challenging in cooperation and coordination but, furthermore, the need for a practice that facilitates work with cura. As this summarises a project that has to consider both technical as well as social perspectives, the competences and notions on a holistic view of technology in the discipline of Techno-Anthropology are relevant to include in the study. Juxtaposing the discipline of Techno-Anthropology with PM in practice can gain insight to how these competences can be usable in PM practice in complex technology projects. The above chapters are summarised in the following problem statement:

How can Techno-Anthropological competences bring value to project management of technology projects in public sector organisations?

In order to proceed with the problem statement, it have been divided into two research areas:

- 1 To understand project management practice at Aalborg Renovation
- 2 Development of a framework for Techno-Anthropological project management in practice

### 1.4 Reading Guide

*Chapter 1* has introduced the case description and the background for the study. Here it introduces the need for comparing Techno-Anthropological competences and a holistic technology literacy to the practice of project management in a public sector organisation. *Chapter 2* introduces the Research Design of this study. Here the theories Project as Practice and Actor Network Theory will be presented together with a Framework of Techno-Anthropological competence. In *Chapter 3* the analysis of project as practice can be found. The result from the analysis are discussed in relation to Techno-Anthropological competences in *Chapter 4*. In *Chapter 5* are a reflection on the quality of the study, the conclusion and a forward discussion that rounds op the report.

# Chapter 2

### **Research Design**

Due to the agenda for the project — seeking what Techno-Anthropological competences and technology literacy can bring to PM at Aalborg Renovation and the public administration sector in general—this chapter will introduce the theoretical framework for this study. Lastly, in this chapter, the methodological considerations and data collection methods will be presented and discussed.

In order for the reader to follow the use of a research design and how the approach is translated into practice, I will present the worldview mixture of a pragmatic, constructivist and participatory approach. The world view pragmatic is described by Creswell (2008b) as problem orientated where the researcher chooses a method and techniques based on the problem to be solved. Therefore, this approach frames a 'pick and choose' approach, making the researcher able to create his own patchwork of research design. The pragmatic worldview seeks to understand the problem which can be related to the origin of this project, where PM challenges at Aalborg Renovation were experienced from the inside of the organisation and a need for a better understanding of PM practice emerged. One could argue that having a pragmatic approach could be set above other worldviews because one will use perspectives from other worldviews. It is not my understanding that this is meant of the Creswell's description, but more to show that in a problem-orientated approach, a collection of different strategies are at stake (Creswell, 2008b). With this said, this study has a pragmatic approach due to the problem-orientated agenda and uses different worldviews as well. Working with the constructivist worldview, the researcher works with the understanding that "individuals seek understanding of the world in which they live and work. Individuals develop subjective meanings of their experiences-meanings directed towards certain objects or things" (Creswell, 2008b: p. 8). The researcher interpreted his experience of the field in order to describe the construction of individual groups' perspectives and make sense of meanings that others have about the world. It is, however, criticised by the participatory worldview that the constructivist stance does not go "far enough in advocating for an action agenda to help marginalised peoples" (Creswell, 2008b: 9). What the participatory approach brings to this study is to change the studied area in a agenda of e.g. emancipation. Changes in practice have not been the primary focus in this project-this is more set to be the next step based on the insight that the study has created-but having this approach affecting the methods has meant that I have not been afraid of proposing new ways of working and taking responsibility in the daily work at Aalborg Renovation. On the other hand, an emancipation of the voices of material agents has been a focus for the study and therefore the use of Actor Network Theory, which will be introduced in the following sections. As PM is a scientific sub-discipline of the execution of theoretical approaches in practice (Söderlund, 2012), it should be explored in the practice where it is executed (Hällgren et al., 2012). Therefore, the participatory worldview brings us perspective that seeks a dialectic way of getting deeply involved in the field of study, as has been the case in this project.

### 2.1 Theoretical Framework

As explained, the project seek to bind a special technology literacy to a situated practice and bridge academic competences to project management. With the aim of studying how that can be accomplished, project as practice, introduced by Hällgren et al. (2012), is used as an inspirational perspective for the study of PM in practice, meaning that practice is more in focus than the process as a whole. Having said that, there is a need to embrace the material in the way we look at practice. Here, Actor Network Theory is used: a set of material spectacles that shows how to look for the material agents and how agents inscribed in the actors affect our actions Akrich (1992). After bringing in these two perspectives to the analysis of the project complexity, Tom Børsen's notions on Techno-Anthropological competences are later used as a framework for discussing which competences should be put in action when working with complex project management in practice at Aalborg Renovation.

### 2.1.1 **Project as Practice**

Hällgren et al. (2012) describes the projects as practice approach, as a way of challenging the process approach. This because even though a process approach aims to look for findings in relation to the social context and has developed tool on how to attend to the context, it lacks in the ability to handle the situated activities of human beings and does not include a view on how actions and their implications affect the final conclusions. The practice approach has grown from a critique of how earlier project approach has been handled with no sensitivity for contextual differences in the social settings. Table 2.1 summarises their comparison of the practice and process approach.

The practice approach sees the project as a continuing renegotiation of activities between those involved. In comparison, the process approach sees the project as something that the organisation has, meaning that it assumes that people will behave in a certain way in relation to the organisation they are part of. As an example, the practice approach would look at the activity of creating a Gantt diagram, because this is important for the subsequent practice, while the process approach does not explain what people do and therefore does not explain the basic assumption behind the basis of the process (Hällgren et al., 2012).

To understand project as a practice, some core concepts must be defined here: praxis, practice and practitioners. "*Praxis* is the situated knowledge doing of an individual" (p. 505). No activities are too small and should always be seen in relation to the context. These activities do not have

	Practice Approach	Process Approach
The role of acticities	The activities and their meaning in special social setting, explain how the practice comes about	The activities and how they flow, and theirg general development over time explan the funcitons of the
Relation to the emperical setting	Viewed as the constantly renegotiated sum of people's practice	Viewed as behaving according to a certain pattern
Point of Interest	Emphasis is on how a particular part of the project is acheived through a micro-level practice	Emphasis in on how things change on an organizational level
Type of investigation	Traditionally rely on partcipant observations	Traditionally rely on interviews
Research perspective	The understanding is constructed from a buttom-up persepctive of the organization	The understanding is constructed from a top-down longitudianl perspective on the organization
Example of research question	How is the project executipn reflected in the practice of developing the Gantt chart in a construction project?	What are the milestones in the concurrent engineering process?

**Figure 2.1:** Reconstruction of the table of difference between practice and process approach by (Hällgren et al., 2012: p. 504)

to follow the plan but are simply activities with the aim of getting job done. "Practices are the norms, values and rules that are drawn upon when executing the project" (p. 506). These are part of the routines of a human being and its resources in getting the job done. These can be related to micro, meso and macro levels. The micro are the routines, while the meso are related to organisational or sub-organisational practices, and the macro are the practices related to the general practices of the company or trends in the company's industry. "Practitioners are the people who interpret and execute praxis and practices" (p. 507). These people can be anyone involved in executing the project, both inside and outside the organisation. Without these people, it would be impossible to define praxis and practices. According to Hällgren et al. (2012), there is still much to learn and investigate about these persons.

Investigating projects as practice is a search for micro activities that must be analysed in relation to larger patterns of groups or organisations. Here, one can meet the challenge generalisation. This can be done by defining which situations are observed. For example, meetings have been a specific focus area for the analysis of PM practice in this study. Another way could be by looking at the activities related to different periods of the project or looking at the relation between the three concepts of praxis, practices and practitioners in specific episodes. Another challenge is the relevance of the study. This should be handled by defining a "site", meaning the context within the research takes place and where the knowledge production will be relevant. This notion is important because it is impossible to understand data without understanding what the data is a part of (Hällgren et al., 2012). Project as practice brings a greater reflectivity on the activities done by practitioners in the daily work. It brings attention to the small things that are often forgotten. Used in analysis, it can show what can initiate changes and how practitioners can be reflective about their own activities. It demands a sensitivity for situated activities found in the qualitative tool box and are in this project used as a framework of research on PM at Aalborg Renovation (Hällgren et al., 2012). This reflectivity of practice are used as a way to create a body of experience to be used in a discussion on the competences and practice of project managers.

### 2.1.2 Actor-Network Theory: A Supplementary Vocabulary

As a supplement to the project, the practice approach Actor-Network Theory (hereafter ANT) is used to ensure that the agents of artefacts are part of the project and its approach. ANT is best known from the words of Bruno Latour together with Steven Woolgaar, taking its starting point in their stories of laboratory life, explaining how material affects the engineering practice (Woolgar and Latour, 1979). ANT stresses how an actor is defined by its relations and that actors can and do form with other entities, including non-human entities. This provides us with an understanding of how activity and knowledge are mediated by the materiality of human practice and that ANT as a practice approach provides a vocabulary for expressing the agents of materiality. Including this vocabulary in understanding project complexities can help see the unpredictable roles of non-humans which project-based practitioners encounter on a daily basis (Sage et al., 2011).

To understand the nonhuman actors, Madeleine Akrich shows us how we can understand the creation of actors by using the concept of inscription to show us how engineers or designers have inscribed notions of use on objects (Akrich, 1992). As an example, Microsoft have inscribed designer perspectives into the use of Microsoft Projects software, trying to guide the user towards an expected practice. In contrast to the concept of inscription, Akrich shows us how actors describe these technical objects, meaning reading the scripts laid in the objects. As an example, she shows us how a special cable installed on a solar power cell inscribed with a cable to fit African use failed to be put to use because the technician in Africa was not able to provide service for that type of cable. The important notion that Akrich (1992) brings to this project is that the objects or technology in focus for this project are created with scripts to be read by users. These can be objects related to RenoWeb or objects used in project management.

The concept of translation is maybe the most known concept in ANT. It describes how actors are defined and why they are what they are. One of the most famous analyses on the translation is done by Callon (1986), who followed a group of fishermen of St. Brieuc Bay and their cooperation with scientists and scallops and the process they went though. This creates a well-used framework for establishing actors' relations to each other and shows us how technical devices have agents that are crucial to recognise in order to understand what drives social processes. Even though that is the case, Callon's framework tries to frame translation into four, more or less pre-decided steps here, Problematization, Interessement, Enrollment and Mobilization, and is therefore seen as more suitable for looking at projects as a process. This does not mean that concepts in the framework are not usable in material vocabulary and therefore, notions of translation by Callon (1986) are still used in the analysis of practice, especially in the following discussion on Techno-Anthropological competence. As another way to understand translation, Bruno Latour explains the concept in Pandora's Hope as working with four kinds of technical mediation with the aim of translation (Latour, 1999). Here, translation is described as the goal that an actor accomplishes though the mediation with one or several actors with the aim of overcoming an interruption on the way to achieving a goal. This can be done with different strategies: Goal Translation, Composition, Reversible Black Boxing and Delegation<sup>1</sup>. They are useful concepts in

<sup>&</sup>lt;sup>1</sup>These concepts will be further explained when used in analysis

the way that they help understand the strategy behind the translation of actors, their praxis, and therefore useful together with the practice approach when looking at PM.

#### 2.1.3 A Framework of Techno-Anthropological Competences

While the practice approach to project management helps us focus on project actions and the structures behind, and the ANT approach help us remember the material aspect of practice and the effect that nonhuman actors have on us, we still need an approach to compare the project management activities to useful competences that can handle the complexities of project practice. Here, an overview of Techno-Anthropological competences are described and put together to handle these complexities. They are therefore useful in the discussion of these competences and the experienced practice of PM at Aalborg Renovation.

Techno-Anthropological project management is set to consider these complex factors of technology in relation to the execution of PM. Tom Børsen's description of the core values of Techno-Anthropology are summed up in figure 2.2 - illustrated as a triangle of key Techno-Anthropological perspectives and competences. If we start with the technology perspectives, the figure shows



Figure 2.2: Techno-Anthropological Competences by (Børsen, 2013: 190)

us how technology only exists as an artefact in use in relation to users and stakeholders and its experts. On his notion of Techno-Anthropological technology literacy Christensen (2013: p. 387) describes: "Technology cannot be reduced to the artefact since the notion of technology refers to use in practice, including the skills and competencies required to use the technology as well as the organisation of society in accord with the technology". This complex understanding of technology means that technology must be considered as a practice—something in use, continuously changing and changing its relations to other actors.

Working in this field of Techno-Anthropology, Børsen (2013) discusses the competences for doing so (these are have already been briefly introduced in section 1.2). If we start with the competences of interactional expertise, he briefly summarises these competences in relation to the technological notions on technology as:

"a competence that can 'repair' a lack of understanding between experts and users of technology and techno-science. It might also mediate between what C.P. Snow (1959) identified as the clash of the two expert cultures: the humanities and the sciences, as well as between different professionals The competence is partly about mapping different groups' horizons of understanding and cultural codes. Interactional expertise is also about translating between them, so that the two cultures can generate an understanding of other perspectives and incorporate them in their own cultural schemes" (Børsen, 2013: 49-50).

So it is about mediation between different experts' culture and the users of technology. The challenges in focus for these competencies are primarily cultural clashes between users of technology and the technical experts and incommensurability between different professions and expert groups (Børsen, 2013). If we compare this to the case, this role will be some sort of translation between an expert culture of product developers and technology representatives and the customer or user, like Aalborg Renovation.

Social responsibility competences are related to bringing in ethical judgement on the technological effect on humans into the researcher's own or a group's decisions on technology. Ethical reflection does not only relate to the single researcher, but as well to a group as a whole (Børsen, 2013). As a case example, the RenoWeb system can be used to oversee employees using the system register when the container is emptied and gain insight into their workdays, breaks and the route they drive at work.

"Social responsibility competence is inter-disciplinary in the sense that it combines ethical judgement, anthropology's focus on effects on human culture and biology, and responsibility in technological practices" (Børsen, 2013: p. 57).

Botin (2015) gives his notion on this responsibility and tries to frame appropriate and valuesbased Techno-Anthropology by describing the 7 Es of Techno-Anthropology, dealing with morality and ethics of technology. As one of them I want to mention is emancipation. This concept captures the fact that technologies are more a process and practice than a concrete product. Botin describes them as an open-ended process of mediation and adaption. We mediate our own relation to technology and Techno-Anthropologists should both be aware of and able to facilitate that process (Botin, 2015).

Lastly, Anthropology-driven design competences have their place in the triangle. These bring their primary inspiration from participatory design and anthropological methods. When dealing with technology, it once again becomes essential to be aware that technology should be understood as it is used in practice. Therefore, an anthropological and ethnographic approach becomes important:

"(...) the term ethnography refers to a set of methods that direct the focus on the manner in which a phenomenon is enacted in practise and the way data or ethnographic material is generated through participation, observation, interviews and the collection of artifacts. (...) ethnographic approaches seek to elicit the world from the point of view of those who live in it" (Børsen, 2013: 59) Doing anthropology-driven design as a Techno-Anthropologist, one positions himself with the aim of moving back and forth between technology developers and users and stakeholders to use this in-betweenness to mediate the technology as something embedded in human practice. Petersen (2015) makes a methodological discussion on classical anthropology and anthropology-driven design. Within the classical approach, the researcher positions himself with an agenda of collecting data though ethnographic methods, where both an insider and outsider perspective are in focus to ensure both the insider's perspective and the outsider's reflectivity. With the design agenda, creativity and a changing and evolving agenda using methods for both data collection and innovation, the involvement and participation of users and stakeholder are the goal (Petersen, 2015).

#### 2.1.4 Binding the Three Perspectives Together

The above chapter has introduced the main perspectives to be used in the analysis of the project. These three perspectives also set a path for data collection in the project as well, which are described in the following section. In this section, I will briefly focus on how they are put together and sum up on their use. First, Projects as Practice frames an investigation on projects, project activities and project managers that tries to capture what, who and when projects are affected by its activities (Hällgren et al., 2012). Dealing with technology projects, in which "Aalborg uden affald" is included and especially the sub-project, RenoWeb, it becomes important to bring in a theory that helps us see the effect and agenda of the material things. Here, Actor Network Theory supplements the practice approach because it itself captures a practice approach by telling us to follow the actors in their practice of creating relations with other entities with different agendas. Therefore, ANT can bring the voices of the nonhuman as well as the humans to the front of the analysis (Latour, 1999). Børsen (2013) framework, focusing on Techno-Anthological competences are hereafter brought in as a way to frame a discussion on how PM in technology projects should be handled because the Techno-Anthropological approach frames the interest of technology projects-bridging the gap between technology and humans and creating technology in practice.

### 2.2 Data Collection

I have now introduced the theoretical framework as a pragmatic approach to the study of project management in practice with an extended focus on material agents and its effect on practice. I have introduced the pragmatic approach as a problem-orientated approach where I allow myself to be inspired from participatory and constructivist perspectives. As Creswell (2008b) introduces it, the pragmatic approach opens allow to 'pick and choose' in relation to the problem studied, in this project qualitative.

Participant observations have been the approach used for the collection for the main part of my data. In participant observations, one seeks the presence in the moments of activities in order to use the body and senses to explore and feel the practices that one participant in (Tjørnhøj-Thomsen and Whyte, 2007; Spradley, 1980). The participant observations have different levels of

activities, going from the non-participant to the complete participant, where the level of activities gives you a deep insight and feeling because you have it in your own hands Spradley (1980). During my fieldwork, I was very much involved due to my undertaking of the role of Project Management Assistant to the project manager on the IT project. This is related to some kind of traineeship, which is a classical role undertaken by anthropologists (Bundsgaard, 2010). On the other hand, the responsibility and unassisted decisions that have been part of my role also show that the role I have undertaken has given a concrete relation to project management activities.

#### 2.2.1 Membership Fieldwork

The special role I have undertaken is as a member of the organisation, Aalborg Renovation. Here Adler (1987) discussed how fieldwork with benefits can be undertaken from inside the organisation. The methodology takes its departure in an ethnomethodological approach. Here, the membership fieldwork can be achieved by three different kinds of memberships: peripheral, active and complete membership. While the peripheral member holds his distance, this could be for methodological reasons or that he does not feel comfortable with the activities. The active member undertakes a more central position in the organisation and does more than just participating. The active members are a resource of the work practice and are more of a colleague that an insider. Lastly, there is the complete member that in many cases can be compared to a native. This member shares a common experience, goals and feelings with others inside the organisation. This role reduces the need for exploring correlations in the organisation and instead, it is the obvious things that the member will study Adler (1987).

In my fieldwork, the active membership has been the most relevant practice to focus upon. First of all, I have not hesitated in engaging myself in activities and taking responsibility for tasks than can be related to practice and therefore the distance that peripheral membership represents have not been there. What I have used from this perspective is to remember to get away from the field once a week in order to make reflections and write field notes. The complete membership is too extreme to describe the membership I have undertaken; I have been looking at practices of special group and simultaneously undertaken task responsibility. Having said that, I have not just been going with the flow, but have asked and made suggestions for activities myself, based on more theoretical background that I bring with me.

"(...) despite the active membership researchers' functional involvement in their settings, they maintain several escape routes that safeguard their greater commitment to their academic role. First, they periodically withdraw from the setting to nourish their outside interests and limit their involvement (although they cannot do this as easily as peripheral membership researchers because they have obligations to fulfil within the setting). Second, they periodically realign their perspective with those of outsiders in order to analyse the setting critically (the theoretical stance). Third, they retain sight of the fact that, ultimately, their participation in this research will be temporary in scope, and that their personal and career commitments, unlike their fellow participants, lie elsewhere" (Adler, 1987: pp. 52-53). The three roles are by Adler (1987) placed in a scale between existential sociology and ethnomethodology as a way of showing the epistemological background that the memberships draw their approaches from. While the existential sociologist seeks more classical field work where the researcher seeks insider roles to achieve interaction as an insider, the researcher in the ethnomethodological approach seek to establish himself as the subject for investigation and therefore his own actions should be reflect upon (Adler, 1987).

As my membership has been something in between, the undertaking of active membership field notes has been important to ensure that experience of others and reflections of own activities have been captured. Here, I have found inspiration from Bernard (1994) in work with field notes from different approaches. I have used a diary to write briefly on daily activities in order to keep track of activities of the day. During the day, jottings was use, but not in the usual way with a little notebook, but on yellow stickers instead. As they are present everywhere in the office, I could use them without disturbing normal practice and still make jottings. These jottings were unfolded once or twice a week with help from my diary. Here, these two together created more reflective notes. As a supplement to participant observation, semi-structured interviews were done (Brinkmann and Tanggaard, 2010). These had focus on the structures behind practice and the project manager's own understanding of working in a public sector organisation. Lastly, I will mention the data collection from my former project as this data has also played an important role in this project. Field notes played the same important role in former projects and were also used in waste collection tours together with the refuse workers. Furthermore, a workshop was held as part of a preparation process that I made in order to create a feeling of cura (see 1.2 or Henriksen (2011)) among refuse workers in relation to the new IT system. An overview of the data collected in this and the former project can be seen in appendix B.

### 2.2.2 Coding and Analysis

Interviews and field notes from this and he former project have been coded with help from Nvivo. Here I could mark especially interesting periods or activities in the project work and use the theories as guidelines on what to look for. Transcription and writing of field notes have given me the possibility to use the textual sections in the analysis and thereby give an insight into my experience at Aalborg Renovation.

# **Chapter 3**

# **Analysis of Project as Practice**

The problem statement of this project sets the frame for a study of how competences from the field of Techno-Anthropology can be applied to a specific context of the practice of project management at Aalborg Renovation. In order to do this, I will start the analysis by exploring them on projects as practice in order to look at how project management is carried out. This part of the analysis will give some insight into the context and especially the activities of project managers at Aalborg Renovation—a group of people I have worked closely with. The analysis will focus on praxis, practices and practitioners in relation to the themes: stakeholder management, resources, time management, meeting activities and, finally, a case of great technological agents and their effects on project work and management. With inspiration from Hällgren et al. (2012), the analysis will have its focus on praxis and summarise these experiences with a focus on practices of PM at Aalborg Renovation. Furthermore, Actor Network Theory will be introduced when there is a need for a vocabulary to explain how the material actors play an important role.

### 3.1 Initial Planning and Project Operation

When asked about what PM is for them, the project managers interviewed in this study talk about being somewhere in between operations and project. This may signal a specific focus in the process of project work, where the product is delivered and the project ends. However, in the case of Aalborg Renovation, this perspective must have its own specific focus. This will do by starting by looking at the project organisation visualised in figure 3.1 In this analysis, the second layer from the bottom in the organisational diagram is interesting to focus on. Here, project managers are placed, responsible for different projects or sub-projects, as part of the general umbrella project "Aalborg uden affald". The Secretary Manager comments on this role:

"A project manager always lends manager authority, in the worst case, a management stick in order to knock others into place in a project. It should not be necessary because the direction and management decisions should already frame much of the process whereas a project manager just takes responsibility for projects to be executed"

- Interview with Secretary Manager d. 15.03.17



Figure 3.1: Diagram of project organisation, "Aalborg uden affald"

In doing so, project managers have to initiate activities, which can be understood as praxis when we look at the individual project manager. In an interview with the project manager of the waste collection and sorting, I had a discussion on PM praxis at Aalborg Renovation. Here, the perspective of working as a project manager in this organisation, Aalborg Renovation, was presented as special and difficult:

"Indeed it is quite important to acknowledge, when you talk about this, that it is not just a task, but that it is something that the politicians have adopted and that we are going to implement. Our projects, they start much earlier than ordinary projects, because it starts with the presentation of politics, for example in the form of the waste plan. Then, what is the goal we want, and then afterwards, it begins to be changed into simple projects and tasks"

- Interview with Project Manager d. 03.05.17

This point may seem well known in politically-controlled projects, that the political organisation sets some very specific frames to work under as a project manager because of shifting political visions (Rybirk, 2015). Even though that is the case, it is important to show how project managers are aware of this. This project manager comments further on the issue, that this can "shake our projects as there may be some other political signals that may cause some of the projects we have decided to adhere to along the way because some other stakeholders will be added".

Another project manager on buried waste containers, describes his experience of being in political organisation as something that can change the project radically during the project and mentions that it can be difficult to capture the signal and find out what is asked of you:

"(...) if you forget to ask in good time, as others have done for example with the gastrucks. Here they (politicians) claimed that gas-trucks would be smart, instead of considering what was possible in practice and here you can risk starting over. There may be some unclear guidelines here, what is it really that we have to adhere to, it is so open. You may feel that it depends a bit what mood they are in and what catches their attention".

- Interview with Project Manager d. 29.05.17

This project manager focuses his attention on the division between two bigger phases in a project. Here, the initiating phase he describes is planning where the project is defined and employed as Aalborg Renovation are part of defining the project themselves. Here, politicians can affect the project from time to time, but it also depends on which signals employees at Aalborg Renovation are sending the politicians.

"E.g. our former manager, he suddenly goes out to the newspaper and begins to write that we need notification devices on our buried waste containers, and that catches the politicians' attention, and then it is suddenly determined and difficult to get out of again".

- Interview with Project Manager d. 29.05.17

The other phases are more like the operational phase of the project, where the project is executed. Here it more time-controlled and, for example, to ensure that entrepreneurs furfill they contracts and so on. As I asked for a more standard way of handling these phases, he answered:

"I do not think we have any manual or similar, so I have a way I run my project, but and again it is also very different from project to project depending of the size of the project. E.g. My project with buried containers, there will be a lot of repetitions and I'll build up a process along the way and get experience of how long time things take".

- Interview with Project Manager d. 29.05.17

To sum up this first theme in the practice analysis, we can confirm Rybirk (2015) notions of project management challenges in public administration projects. As Aalborg Renovation is a political organisation, it is framed with possible changing signals and visions for project managers and the execution of projects at Aalborg Renovation. This sets a practice of awareness and the signals and need for keeping up to date on upcoming changes and what is communicated both from politicians and from managers in the organisation. The shift of perspectives between initial planning and more operational project management also shows us that the perspective of PM changes on the way.

### 3.2 Stakeholder Management in Practice

Stakeholder management should seem like an area that would have specific sets of guidelines and some overall guidelines in the organisation. As Rybirk (2015) explains, this focus is especially important in public administration projects. It could be seen as a task which, according to the above statement of changing signals from political stakeholders, should be handled with a specific focus in order to succeed as a project manager. In the search for these general guidelines on stakeholder management, I only found a form for project description and status: In my work as a project manager assistant, I was asked to fill out a project description as way of informing a new portfolio manager hired to organise and coordinate the sub-projects. I filled out the pre-defined form with enthusiasm, with the aim of showing that I got the overview of the project, and the ability to see challenges in the project and the relevant focus areas for further work

- Field note d. 08.03.17

A section in this project form was a stakeholder overview, based on a short analysis on how these should be handled and what challenges the project could possibly meet. These forms are accessible for all project managers through the municipal documentation system called eDoc. Due to my enthusiasm in filling out the form satisfactorily and to understand the use of the formu, I spent some time reading though the forms filled out by the other project managers. Here, I was surprised to see that this specific section was empty in all project descriptions besides the IT project that I was working on myself. The conclusion I draw from this was maybe obvious: that this form was not used to this purpose or that the management of stakeholders was not documented. This was confirmed in my interview with the project manager of waste collection and sorting, telling me that

"some of the things that have gone wrong are that stakeholder analyses have not been conducted on a regular basis and that no risk assessments have been made in cooperation with someone from Operation in order to look at the resource allocation"

- Interview with Project Manager d. 03.05.17.

I find it interesting that the missing out of the stakeholder management and focus on the risks do not have specific focus in the project management practices at Aalborg Renovation, even though at least one of the project managers are aware that they are missing.

To follow up on the story of my own involvement with the form and the task of filling it out, my own project manager on the IT project gave me feedback on my project description.

The feedback was that "it is too much, the portfolio manager wants half a page on how the project is going and that we make categorisations of the tasks, giving them a number between 1-5 in his own Sharepoint programme"

- Field note d. 09.03.17

The stakeholder analysis was put to the side in order to estimate and evaluate the smaller tasks in the project. If we bring in Actor Network Theory, it tells us to look at the material things, and brings us the vocabulary to describe how these affect what we do. Here, Madeleine Akrich (1992) uses the concepts on *inscription* and *description* to describe how a specific use in an artefact can be inscribed, consciously or unconsciously by the developer. Even though the developer has inscribed a specific use, the user or the actor interacting with the artefact still makes their own description of the scripts when it is put to use. It is not given that the description sets the same agenda as inscribed. If we use this perspective on the project description form, we can argue that the developer put in some script during the creation of the form, possibly affected by some project management theory, telling the user of the form to put focus on different themes in the management practices. I argue that the form was created with the intentions of generalising and setting a common use or framework in the organisation, but does it work? The non-use of the stakeholder section tells us that the form does not succeed with the inscribed agenda as the earlier-mentioned statement from the project manager of waste collection and sorting described.

The concept of translation, best described by Bruno Latour (1999) in Pandora's Hope, can help us describe why the form may not have succeeded with its agenda. First of all, translation aims to explain the process of negotiation between multiple actors. Here, one actor initiated the process of translation in order to fulfil a goal of making project managers consider stakeholder management in their project work. Bruno Latour develops a framework for analysing translations with four types of translation: goal translation, composition, reversible black boxing and delegation. In this case, three types, goal translation, composition and delegation are relevant to bring into the analysis. First of all, goal translation could explain why the form was created, but the conclusion would be the same as above, with the aim of setting some specific themes in focus in the project management practice, which obviously failed. Instead, the goal translation can help us understand the process of doing so. Goal translation is visualised by Latour (1999) in figure 3.2, and is explained with the example of the man with a gun. Here, agent 1 meets an interruption in his search for a goal; this could be another man getting in the way. That creates the desire to kill the other man, which becomes part of a new goal. Then actor 1 goes back in his experience and finds agent 2 (the gun), and combine himself with the gun, creating a new agent, which we can call gunman (agents 1 + 2). This agent is now capable of achieving the goal of killing the man who created the interruption and achieving the other goal as well. Back to the



Figure 3.2: First meaning of translation: Goal Translation by Latour (1999: p. 179)

form, we can explain the process of creating the form, with an actor; this could be the responsible manager of the Department of Projects and Development at Aalborg Renovation with the goal of putting these focus areas to use. In order to communicate this, and to ensure that this agenda will be mobilised in the awareness of project managers now and in the future, he created the form. Here, translation is initiated with the actor, a standardised form giving the possibility to create a project management standardised form appropriate for the purpose.

This exposition on the creation of such a form shows how specifically one can go about these artefacts and their important in the praxis and practices of project management. To continue showing the important of focusing on the materiality, we can bring in the second meaning of translation: *composition*. Here, Latour shows us that the bindings between two agents are in many cases not enough in order to achieve the goals. If we once again look at the project description form, it will not be used just because it is there. Here, the actor, the project manager

form, meets an interruption; *where to be found?* It must be accessible for everyone; it must be visible out there where the praxis happens. Therefore, the actor must initiate translation with the eDoc system. This system is, as mentioned above, used for important documents and documentation of the processes and activities. The eDoc system should make it possible for the form to be at the right place and at the right time. Now I have shown how the actor, *project description form accessible though eDoc*, has gone through the process of translation, one could ask why does it not succeed? It does not work as meant because it is not used.

The scripted is not working as expected and ignored. Latour (1999) tells us, that when an artefact works as part of a process and that translation has been successful, it is black boxed and we will not notice it. In contrast, it will come forward into our notice, when it does not work. Here, it becomes interesting to go back though the translation process, what he calls *reversible black boxing*. If we do so, we can put our focus on the eDoc actor once again. The aim of eDoc is to gather information and important document of different projects, decision etc. in a secure but yet still accessible place for employees at Aalborg Renovation and the public administration as a whole. But eDoc fails to communicate the importance of being used as the place to seek information about the criteria for project management practices by the project managers at Aalborg Renovation. The eDoc system was created to make smart documentation on general activities at the organisation and therefore not created for communication of important focus areas, and that may be the issue here.

Instead of using eDoc, the project managers and employees in general are using the public servers accessible through the local file system on their computers. It is my experience that every employee knows the importance of documentation and using eDoc for this, but the culture is that it is not used

#### - Field note d. 28.02.17.

But there is more to this. As I mentioned earlier, the portfolio manager introduced a new system for evaluation on the process of the sub-projects. Furthermore, he deprioritised the form for the benefit of his own 1-5 system. This can be described as a delegation to the system, giving the system the responsibility to interrupt the project managers in their work and asking to evaluate their tasks. However, as he do so, he also opened up the old black box of the form, looked for the weak spots and changed the non-working components in a translation process, with the agenda of creating new meaning. The translation gives a new meaning to praxis, where the description and explanation are not in focus, but instead, judgement on the task's process.

To head back to the discussion on stakeholders, we started by establishing that this is important for the project managers at Aalborg Renovation because new stakeholders can be added to the project due to new political signals. I have shown that there is an awareness of its importance, but that the stakeholder analysis and the arrangements made to ensure that important project elements are remembered are ignored. The analysis has shown us that there is a need for a greater focus on stakeholders in general. Going back to the project in practice theory, one can say that praxis have been made in order to secure a common practice in relation to stakeholders, but it is not put into praxis.

I have shown that the project management task, stakeholder management, is not put into

common practice at Aalborg Renovation. This does not mean that the single project managers do not initiate single activities or praxes that can be related to stakeholder management.

I notice that the PM on public procurement follows the thoughts I have about involving the refuse workers more. I do not know if that's because I've said something, but I've previously mentioned my thoughts about the importance of involvement of co-workers. He asks the employees about the public procurement of the new containers and the wording that should be here. It may show that a practice of involvement of refuse workers is not is so far away.

- Fieldnote d. 01.03.17

This example shows a very unstructured example on how one important stakeholder, the refuse worker, are asked about which requirements he should write in the public procurement. This praxis is well known in the hallways at Aalborg Renovation, where small informal meetings are often initiated by project managers aiming to get the right information in order to bring their projects forward. To find another example in which I had a very positive experience was a meeting, spoken about as a workshop. Here, the project manager on public procurement arranged the meeting (see figure 3.3) with the agenda of getting input on the arrangement of new waste bins and collection of kitchen garbage.



Figure 3.3: Picture from meeting concerning public procurement

Here all stakeholders from inside the organisation of Department of Sustainability and Energy Administration were invited to give their notions of themes pre-decided by the project manager. This could, for example, be an important notion on the working environment from the refuse worker, notions on how the administration should be handled with IT and how the new containers should be delivered and what information should be sent out to customers and citizens. It was a positive experience participating in the workshop, with a focus on generating important knowledge. Some workshop principles that I know from theory were also used, such as mixing up different participants in order to create some kind of interdisciplinary discussion

- Field note d. 20.01.17.

I had some thoughts during my participation about the method:

Important notions will maybe remain hidden in the unknown because the themes for discussion are pre-decided, and we don't get to say which themes are important ourselves

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- Field note d. 20.01.17.
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I want to bring up one final and different experience with stakeholder management in which I was very much a part of myself.

I am today as the intermediary between two stakeholders that disagree. These are GIS and Sweco who disagree about which data solution to be made. A lot of municipality data must be sent, first and foremost, from GIS to Sweco in order to create map functions in the system. This involves information about which addresses fit which zone and which district. The original agreement was to create a solution where data was synchronised so that GIS also will benefit from the data created by Sweco - deviations, size of containers, error sortering, etc. Due to time pressure, Sweco now requests data files containing a current picture of the data and therefore data that could be outdated quickly. GIS won't deliver this, as it differs from the original agreement. I'm in the middle and have the interest of the RenoWeb project. I am though dialogue making the agreement that GIS responds to Sweco's demand as I promise to take responsibility for following up on a synchronisation solution when we are under time pressure. Both parties accept this.

- Field note d. 24.02.17

Even though this is my own experience of how project management is done, I still argue that this is a good example of project management tasks, and some important notions on why stakeholders are important. To explain further, I will look into what happened before this situation. About a month before, we had initiated a meeting between Sweco and representatives from GIS in order to start up the task of creating maps in RenoWeb. The agenda of the meeting was to decide the type of data-sharing solution and for the two parties to meet each other and make agreements on communication. Here, we agreed on the synchronised solution and that the two parties should talk together themselves without a middleman because the discussion would be in some kind of technical form that we would not be interested in. We agreed that the project manager and I would be in cc on the email correspondence in order to able to follow the process. In the vocabulary of Actor Network Theory, we could say that we decided to *delegate* the responsibility of keeping the project management team informed about the two actors: Sweco with email access and GIS with email access. This delegation set some framework for the communication which, later in the process, surprised us. The day before the above-described situation I discovered the problem. I was in cc on an email from the GIS representative, where he wrote that he was very unhappy with the cooperation. He wrote in the email:
"Hi Christian You must say if I am too rigid - I do not like when we slip away from something we have agreed on with a supplier. Can you please define how hard I should be putting by foot down so I do not get beyond what you mean"

#### - Email d. 23-02-17.

The incident shows once again that the blacked boxed actor, the representatives, showed itself when things are not working: first of all, because I was not in cc on email before problems evolved and secondly, because we mobilised an agreement between the two parties when they could have handle the task themselves and now the mailfunctions showed themselves instead because of the disagreement. What I want to show with the above example is how a well-used way of communication between many involved stakeholders in a project at Aalborg Renovation, email correspondence, can evolve to something problematic. It is common practice that you cc others if you just want to keep them up to speed. But what happens if you oversee the important information or that important information is not sent to you because it is overseen in an email? Email correspondences have the tendency to become a long and confusing artefact to handle and therefore the agenda of informing important actors has the tendency to fail. It also shows that the praxis of sending and replying to emails becomes an important and time-consuming job for the project manager. The emails represent an information flow that you have to be deeply aware of and, in many cases, in control of in order to ensure the project is moving in the right direction.

To sum up, there are many perspectives to bring to the discussion on the practice of stakeholder management, but no common way of doing things. Whether there should be, I will discuss later, but the analysis of praxis shows that different things have been initiated in order to work towards a common practice. The analysis has shown the importance of being aware of the internal actors, human as well as nonhuman, and their role in this translation. The analysis has also given example of how project managers behave in the involvement of internal stakeholders such as the refuse workers, but have not shown a common practice of how this is or should be done.

#### 3.3 Project Management and Access to Resources

When analysing PM in practice, it is important to focus on how the concept of management is understood by project managers. I want to mention that I have become aware that there have been focuses on organisational changes at Aalborg Renovation initiated by the former manager before I entered the organisation. Here, the agenda was to go from management to leadership. I will not focus on this in my analysis, but it is important to be aware of a former focus on this perspective in the organisation. This has shown to be a very important notion to be aware of when thinking of project as practice in the public administration. Why? Because there is a structure about staff responsibility to be aware of. The changes have meant that Operations have been divided into sections and a responsible team leader is hired. The same is the case where a sub-unit, the call centre, has been established and a team leader has been attached as responsible. "By project management, it is the case that we do not have staff responsibility, we are only responsible for the project itself and it is here that team managers are responsible for making resources available as they have staff responsibility"

- Interview with Project Manager d. 03.05.17

It has come to my awareness that in many situations, this point of gaining access to resources is very important for project management practice at Aalborg Renovation. To gain better insight into that, we can look into one of the tasks that this project manager explained to me.

"In my own project there have been a lot of things that have gone wrong about the sorting of plastic and metal. It has come to light that there are challenges with apartment buildings. The cars that are emptying these containers cannot drive directly at the sorting plant because it is not clean enough. Instead it must drive to the incinerator site. This means, first of all, that much of the collected garbage that could have been recycled is not and that there are some individuals who pollute it for everyone else, and it also costs us an extraordinary amount of money. This means that the budget will be exceeded, because when it comes over there, we pay an additional price. (...) seen in retrospect we maybe should have looked more into these risks so we could have seen it coming"

- Interview with Project Manager d. 03.05.17

To solve this expensive problem, which also works against the vision of "Aalborg uden affald", the project managers have set up a new pilot project, where non-sorted containers were reported with help from the RenoWeb system and not emptied, meaning that the collected waste should be clean enough to be recycled. I then provided the data from the operating part of the RenoWeb system; a system there is not completely implemented. Then the project manager had to make an agreement with the team leader in operations that another refuse truck and refuse workers should drive to the addresses where containers weren't emptied due to unsorted waste once a week. The resources for doing so and the practical organisation behind doing the job are done by Operations:

"There I have to coordinate with the team leader about his people because they have to run differently than usual and here there have been some challenges. I would like to have a different route so we could divide the days in good days and bad days, so that something can get on the sorting plant and something can go to the receiver. (...) it can not be done because the routes have already been made and the driver must drive at the same time as the paper truck so there are a lot of challenges here.

Me: So you want to be more flexible with the waste collection?

(...) yes because it costs a lot of money every time and we its like 50% of the buildings (where the waste is not sorted correctly). So if we could only take three days out of the five days, where we say that these are good days we would save a lot of money. But it requires a lot of logistics and coordination and I have not been able to break through with that"

#### - Interview with Project Manager d. 03.05.17

This example of solving a problem in relation to the project managers and her project show the complexity in the negotiation of resources. It show us why it is important to be aware that project managers at Aalborg Renovations, by default, do not have staff responsibility. This creates the need for a bigger focus on building relations and agreements with operations and others where resources are needed to execute the projects. Even though the team leader wants to help, his priorities are to get the operation department running and it can be difficult to get through project visions. To comment further on this insight, I want to bring some of my findings from the former project into this part of the analysis. During my data collection, I spent a lot of time together with the refuse workers because I wanted to understand their work practice in order to compare this with the visions for a new IT system and see the possible conflicting perspectives in the implementation. During the days in the field, hanging on the back of the refuse truck, emptying containers and making conversations with the refuse workers, I learnt about their mindset. I learnt that their day was about making everything efficient and eliminating unnecessary processes. This mindset I found to conflict with the new system because the system meant that they had to spend time on the registration and documentation of their activities. As they cannot see the value in this, it was challenging for implementation-it still is. The former project furthermore showed conflicting visions for the project outputs between the secretary and operations because their core product was different, but they still have to work together. The same problem can be seen in this negotiation of resources. As the team leader from operations wants to work in an effective way, this conflicts with the flexible model that the project manager of waste collection wants. Here, the goal is to operate sustainably and ensure clean waste is collected, in this case conflicting with the effective mindset in operations.

As I wrote, project managers do not by default have staff responsibility, but that is not the case on phase 2 of the IT project. There has been a shift from one project manager to another in between phase 1 and 2 of the IT project. I myself have been part of both phases. The project manager on phase 2 is also team leader for a sub-unit, the call centre, which is part of the secretariat. She was chosen because of her domain knowledge on the type of data (addresses, customer data, subscriptions etc.) that should be transferred to RenoWeb. During the spring, we went through several data tasks. An example of this was to check up on an address and see if it was used for private living or for business. This task was important in order to secure that the right data was implemented to RenoWeb. Here, her employees in the sub-unit were an important resource in order to do these tasks before deadlines. It was natural and "esay" for the project manager to plan these project-related tasks into the daily practice at Aalborg Renovation, and she has even been able to hire another student helper as a replacement for myself because there was an open spot from my former role in the organisation. In contrast, I was involved in phase 1 during the autumn. Here, the previous project manager was "only" project manager and therefore had trouble getting the resources for these data tasks. She had to do them herself with help from me, meaning that the deadline was exceeded and we had trouble following Sweco's plan for implementation.

This part of the analysis shows the struggle that some project managers have to go through in order to ensure their project tasks are executed. The analysis shows that this is challenged by what we can call the daily activities in operations and the secretariat department. The analysis also shows that the position that the project manager represents in these daily work tasks, for example being both a team leader and the project manager at the same time, can make the search for resources easier. The practice is therefore decided based on your position and responsibility in the organisation, but in the role of project manager without staff responsibility you must negotiations with the team leaders in possession of the resources.

#### 3.4 The Practice of Meetings

During my fieldwork at Aalborg Renovation, I have been aware of participating in and arranging several meeting and I want to take a specific look at meetings at Aalborg Renovation. These meetings can be seen as praxis towards handling the general challenges as presented in the analysis above. First of all, I have chosen to divide the meetings into different kinds: *informal meetings, formal internal meetings, formal meetings with external participation* and *conference calls.* All types of meeting are used in praxis at Aalborg Renovation as a way of getting the job done and moving the project forward. It may seem unfruitful to look at the different types of meeting, but it is important to gain insight to the praxis of meetings, why which meeting is used and with what thoughts behind.

The informal meetings are meetings happening in the hallway, where one colleague asks another for input or they have a discussion on a topic of common interest. These are used by project managers as a quick fix to get the project going, setting a direction or smaller decision from responsible managers. These meeting are unstructured, there is no written agenda, nothing is reported directly as a consequence of the meeting and they are not prearranged by, for example, using the outlook calendar. For example, the project manager in public procurement working on the procurement for new containers to be used for kitchen garbage has the tendency to include other employees such as refuse workers or other project managers on other sub-projects such as the IT project to get quick inputs on how the product he is working on has developed. I experienced these small meetings every day from my spot in the office or on a walk through the hallway. I also practiced them myself, especially with the project manager of IT. Here, they are used as my way to get insights into the directions of the project taken from higher up in the system. These are usually decided in managers' meetings for managers and team leaders with staff responsibility.

Right now our focus is on getting a view on the map in the system that can show us in which type of zone - city or land zone which should be used for gaining insight to which agreement the customer is allowed to get. Here we have small meetings from time to time, asking for inputs to layout and where to put the line between two zones. We have these meetings every day with a focus on small adjustments.

#### - Field note d. 30.01.17

The formal internal meetings are meetings where staff from Aalborg Renovations are participating. These can be meetings in the different departments, talking about how things are going and making staff able to speak up about what they are experiencing in their daily work. At department meetings, the projects are offen talked about, but mostly as an orientation on how things are going from managers. Also, internal or more project-specific meetings take place. An example is a small meeting where I participated as a representative of the functionality of the RenoTack device. I participated together with four others: the project manager, a team leader from operations and two refuse workers. Here, the meeting was arranged in order to introduce them to RenoTrack in order for them to start using it.

I'm joining a team leader to introduce RenoTrack as well as discuss the working procedures. Here we talk about planning routes and discuss whether they can plan this once a week and see all orders for the week. I have doubts as to whether the team leader takes responsibility for getting there because it does not lie with me and the management of phase 2.

- Field note d. 10.02.17

This meeting is an example of a meeting with no planned agenda, besides introducing the Reno-Track functionalities. The participants were not asked to prepare anything. What was interesting with the meeting was that we were not prepared and we went away without any agreement on how to work further with the problem that caused the meeting. Furthermore, and maybe more interestingly, it was my experience at the meeting that the reason why we asked to join was to get the operation staff using the new system, but the system at the project was not far enough with the implementation, so the technology would not yet work in practice. Another example with a more successful meeting is a meeting held in the steering committee of the IT project because it is the only sub-project with a committee. Here, meetings are held in order for the group to make decisions on which way the project should go, for example, should money be spent on making the system able to show pictures of the new containers.

Later in the day, a board meeting was held for the RenoWeb project. These meetings are in my interest because the RenoWeb project is the only project that has a steering group. This is a consequence of the fact that the project owner, the secretariat manager, has chosen to be able to follow what is going on and ensure quality and make sure that proper decisions are made. I have a good feel of these meetings. However, it is a challenge to hold as many meetings as I would like to. It is often me who takes the initiative and not the project manager, even though she recognises their significance. The usefulness of this meeting is not to be mistaken. We for example get approved to use costs on getting images on the self-service solution and gets recognitions of our priorities on spending a lot of time involving us in the communication project, as it is recognised that the IT system is incredibly important for this project to succeed properly.

- Field note 28.02.17

Next, we move to *Formal meetings with external participation*. Here I see a contrast with the formal internal meetings due to the participation of external stakeholders or actors such as Sweco. These meetings look like the internal formal meetings. An agenda is prepared and sent on beforehand. The meeting are mostly arranged because a project has met a sudden state where a meeting is necessary in order to agree on how to continue. In late February, we had a meeting with a focus on communications and a self-service solution that makes citizens able to

choose which container they will have in the new waste collection scheme for household waste. I had, based on the project managers inquiry, called for the meeting but she was in charge of the actual meeting. During the meeting I had a feeling of responsibility for the process of the meeting.

I probably have this feeling because I called for the meeting, even though it was on the project manager's request. I feel that one of us should be responsible for the meeting and I don't feel she takes enough action. I may have these feelings in relation to thoughts I make of the general project leader as an initiator, a framework creator and a facilitator who controls the process. In a meeting like this, where several stakeholders and participants from our own and other sub-projects are present to find a common further direction, people have different agendas. As I see it, it should not be the intention that the project manager should be an authority, but one who ensures that the meeting is framed in some way. It is in this context that I feel that I must step in to initiate the right and important discussions and make sure that they are collected

- Field note d. 27.02.17.

The field note shows my experience of a meeting, with the feeling of responsibility for things going in the right direction. But what is the right direction and who decides that?

One could wonder: what are the important discussions and how do I know what they are? First and foremost, the PM and myself have a unique insight into what is happening in the project, as we work in it every day. The experts from Sweco, they probably know the technological limitations better than us, but they do not know what is happening at Aalborg Renovation in a way we do. As an example, there are some rules that determine what types of containers a citizen may receive, which also determine what information should be visible in the self-service solution. Communication has an understanding of what the citizen understands about the product we create not as good as the citizen themselves, but nevertheless an experience of how such information is received

- Field note + 27.02.17

As we are responsible for arranging the meeting, defining who is participating and preparing the agenda, we set an agenda for which way the meeting should go, because there are, in some ways, expectations for the outcome of the meeting. If there are not any expectations, why then have a meeting.

*Conference calls* can best be described as a distance-meeting that appears in both informal and formal settings. Conference calls are used as a way of having the small meeting in the hallway at a longer distance. Skype is used because it gives the ability to talk while you are at the computer (the phones does too), it gives you the ability to see each other and share the screen and therefore you can see the meeting participants and documents. More importantly, a function in Skype tells you whether you are present at the computer or have been inactive for x minutes, occupied or participating in a meeting. Here, Skype sends a signal to other on the Skype contact list telling them whether you are occupied or not. It is like when the door is open to an office: Skype can show whether the door is open and it is okay to interrupt. These functions give

the possibility to use Skype in a praxis where you can just call or write to ask when the doors are open. Skype is also used for the more formal status meetings in the IT project. Here, different actors participate in a conference call once a week, discussing the progress of the project (see figure 3.4). These meetings are initiated by Sweco, and the agenda is also set by Sweco. One could argue that these meeting are as formal as the formal meeting with external participation because many of the same criteria are fulfilled, but it has come to my experience that participants from Aalborg Renovation—here the project manager, a team leader from operations and me—are not as prepared as we would be for a formal meeting. The status meeting are more of a loose talk on how it is going to orientate all members of the project group, but when very important decisions are made, this meeting form is substituted with the formal meeting with external participation or the internal formal meeting.



Figure 3.4: Using Skype for Conference call in a status meeting

The focus on meetings has looked very narrowly at the meeting practice but on the other hand, has given an insight to a practice that takes up a lot of time at Aalborg Renovation and especially to project managers and team leaders. These types of meeting are used differently, but they all represent a practice of searching for knowledge, resources, directions or decisions that can help them get their project going. The formal meeting with external participation is the meeting where a PM practice are most visible because this type of meeting in some way initiates a practice of preparation and control of a process, Here project managers have to ensure an outcome that can help get the project moving. Therefore, the preparation and the process during the meeting become more important than at the other meetings.

#### 3.5 Time Management and Deadlines

Earlier in this chapter, I focused on stakeholders and resources, and have also shown that there is a connection between these two. Furthermore, I put focus on the meetings as activities that are used a lot in several situations. I described, in relation to the conference call meetings, that time plan were talked though on a weekly basis, but mainly handled by the system supplier and technical experts from Sweco. I want to focus more on time management because I find my experience surprising and problematic. As I have not been part of the time management in phase 1, I will not comment on that, with the exception that it has come to my attention that less important deadlines were often missed. I do not know why and how this was handled. But moving on to phase 2, during the conference calls with the representatives from Aalborg Renovation—me, the project manager and an team leader from operations—I have experienced a time management programme put into use. Here, Microsoft Projects is used as an overview of tasks, deadlines and responsibilities (see figure 3.5). The programme came to our attention as I



Figure 3.5: Screen shot form time plan, it project

asked for a time plan in order to get an overview of activities I could expect to participate in. That was created beside the plan that Sweco uses. I enquired further into that and learned that the praxis actually was that Sweco was informally in charge of time management, telling the project manager what needs to be done, when and with what deadline. Based on that information, the project manager acted. I asked for Sweco to share their plan in order for us be aware of the deadlines and tasks in good time. Just having the plan in our hands have meant that we start planning the tasks, trying to picture what should happened the next month, week, and so on. Starting up these meetings did not solve the problem though.

Today I have tried to raise the project meetings and show the value of having these meetings. We have project meetings in the calendar Monday and Friday, but this does not reflect the reality. The project manager wants to look after the phone because it is very busy in the call centre. When I asked for a project meeting last week she said, "Fine, don't you think we should reserve a couple of hours?" Today I have the feeling that she wants us to get through with it as quickly possible

- Field note d. 10.04.17.

The above example is an example of an agreement we made when this project manager took over the project from the former. Here, we agreed that it would be good to have small meeting to talk together about the project status and which tasks to prioritise. As the example above shows, these meetings have been cancelled and given low priority during the project period I have participated in. This is quite negative to me because as some kind of a resource in the project, I have had difficulty in prioritising and getting an overview of tasks. In contrast, I will argue that the meetings were giving me the impression that the PM recognises the importance of comparing opinions and experience during the project work.

If we go back to the time plan originally created by Sweco, we used this plan as our plan as well. We printed it all out and started going through it, focusing on resources and deadlines. This process was important to ensure a better awareness of deadlines in the execution of tasks. Even though that is the case, we still have not sat down and created a plan of our own but focused our energy on understanding their plan. The use of plan and Gantt-diagrams like ours have been analysed by others with the ANT perspective as a perfect perspective of how material artefact have agents and influence praxis (see e.g. Sage et al. (2011)). In this case, it is especially important to be aware of this perspective, not only because the plan represents the translation of several actors but also because this plan is created by an external stakeholder and taken on at Aalborg Renovation as the actor that defines activities in the project work. The plan comes with an inscription, showing us when to act on what. Here the description of this enrols us in some kind of praxis. Sometimes, as in the status meeting mentioned above the project managers use the 'share desktop' function in Skype in order to show us the plan and the next step. Callon (1986) uses the concept interessement devices to describe how an artefact can be used for the activity of enrolling someone in the process of translation. The time plan gets the same function at these meetings. What the time plan manages to do, the calendar, in contrast, does not always. If we go back to the example with the project meetings scheduled every Monday and Friday, this is always plotted in the calendar. Although the event pops up on your phone, computer and so on telling you that you have to attend the project meeting in 1 hour or 15 minutes, these meetings are not held as established earlier. So why does it fail? This may be explained by the abovementioned cultures about internal meetings and the importance of these meetings. There is a certain kind of culture that allows us to cancel or give low priority to these meetings. It may be related to the awareness of the core product of the company: to empty the waste container. This can be described as service and operations, and these are always prioritised, as I showed with the example of a project meeting above, and therefore all employees seem to understand that something that needs one's full attention can come up.

The analysis makes the project managers at Aalborg Renovation look like they are very busy. On this topic, the Secretary Manager comments: "But who is it that tells each other that we are busy? There is so to say a saying about that. We just went to the leadership meeting and we can not get started before a phone is calling: I just have to take this, why? As a leader, but also as a project manager and sometimes as an employee, so to speak: yes, we are busy, but what are we really busy with? We are not busier here than other places. (...) We can be busy because we have not tried such a thing before (big projects) and because we are an immature organisation about project management and implementation. It's a little quick and dirty when we go out and buy ten cars because we have to drive in three new districts. It is wildly fascinating as academic to look at, but we think we are busy because we are not used to working with development".

- Interview with Secretary Manager d. 15.03.17

I bring in these comments because I think they give an interesting insight into how time may be explored by project managers and why their understanding of being busy might be wrong. It might also show that being busy is a subjective position. The saying may be also show us that the manager is unaware of how hard his employees are working or that project managers are not good enough at keeping track of time and creating an overview of project tasks.

The above analysis goes through a praxis that can be defined as a practice where the project managers extinguish the fires. They are under pressure from the daily activities and responsibilities in services and operation, which creates a feeling of being busy, but it can be discussed whether they are or not. Using time plans are, to my experience in mainly the IT project, not initiated by the project manager herself which can be an explanation of the feeling of being busy.

## 3.6 One Actor Sets The Agenda

As the final site for the analysis, I want to show how an actor, a digital self-service solution, can have a significant effect on the actions in a project. As we started with phase 2 of the IT project, we became aware that the city council had decided that all citizens should be able to select the size of the new container for household waste themselves. Aalborg Renovation had no digital solution for that task and it was estimated that asking all citizens to call or write and tell us which size they would like would have resulted in an unmanageable amount of administrative work. Therefore, involving Sweco, the company that is delivering the new IT system, was the only possibility. They were asked if they could create a digital self-service solution working together with their system that we were in the process of implementing. In the weeks after that request, we had some negotiations about how such a solution could be developed and added to the existing plans for implementation. First, of course, we had to consider the price of the extra product in the system portfolio, but what is more interesting is the negotiation about the deadlines of the development and implementation of such a solution and the possibilities that we had due to time pressure. It was a negotiation of deadlines, how information should be communicated to citizens and businesses, when public procurement should be finished and when data about containers should be sent to external waste collection companies. The self-service solution had the power to affect all these decisions. The project manager of public procurement had set some milestones for his project. Here, citizens would have up to two months to decide and chose which container they would like. However, in order for Sweco to be able to create a digital self-service solution on demand was more time was needed for development and therefore there was less time for citizens and business to choose their containers. As a consequence, the time for choosing a container was reduced to one month. Furthermore, the project manager of public procurement agreed on calling all possible container suppliers to get permission to postpone the procurement of new containers by 5 days, which they agreed to. In order to get citizens and business to use the self-service solution and still create as little administrative work as possible, a focus on communication was important. It was decided that a letter should be sent to people's Eboks account with information about the new waste collection containers and a link to the digital self-service solution. But as communication should be as exact and simple as possible, there was a need for close cooperation between Sweco, the technical developer, and representatives from the information sub-project. The text and the functionalities in the solution should fit with the written text in the letter sent in Eboks. As it was important to ensure as little administration as possible, it was decided that the container Aalborg Renovation would recommend people to select on the specific address should be described in the letter. In order to do so, data from the system would have to go from the old IT-system, named Xellent, to RenoWeb. Hereafter, data had to be processed so the recommended containers were registered in the new system. In order for the letter with container data to be sent out, data and addresses should be taken out of the system and sent to KMD, responsible for the Eboks system. All this gave Sweco a position where they were co-responsible for the container data, information about recommended containers for the future and the self-service solution and the self-service solution as one of the main channels for communication to citizens and businesses.

We can once again bring in Callon (1986) description of translation into this analysis. Callon uses the concept of obligatory passage point to describe the point that all involved actors must agree on what must be accomplished in order for translation to succeed. I argue that because the actors—Aalborg Renovation, the information project, the project manager of IT and public procurement—agreed that the creation of a digital self-service solution was crucial in order to fulfil the decisions from the city council, the information project, the IT project and the public procurement had to change their planning so it fit the frame that the self-solution service created by Sweco could allow. What Callon shows well is that translation happens because all these actors must translate with one another and thereby power relations are created and the ability to affect each other shows itself.

This insight shows how a technical solution can frame project management praxis because it simply have the power to decide what and when things happen in order for others to succeed. It show us that stakeholders can conquer power relations and set demands for the tempo and tasks in a project. It also shows very well how changing signals from political stakeholders can change in project work and put project managers under pressure.

#### 3.7 Summary of Analysis

The analysis started by focusing on what the project managers find important to be aware of, when working in a political organisation. Here changing signals from politicians could be challenging. A shift of perspectives between initial planning and more operational project management did also have some effect on PM practice at Aalborg Renovation. It was difficult to find a common practice of stakeholder management at Aalborg Renovation. Instead the analysis showed that different actions have been initiated in order to work towards a common practice. Here a project form was a way to standardise the project themes, though the initiative have failed to success. The analysis have also given examples of how project managers handle the involvement of internal stakeholders, such as the refuse workers, and project managers form other sub-projects, but have not shown a common practice of how this is, or should be done. Here the workshop meeting was a positive experience.

In order to understand the project manager's access to resources, the investigation focused on both project managers with staff responsibilities, and those without. The reason for this is, that project managers with staff responsibilities are also team leaders, in addition to being project managers. This perspective was important to project management practice, because the negotiation of resources, in case of only being a project manager, can take up a lot of time and is difficult to break though with, due to conflicting expectation to the future result. The focus on meeting have gave an insight to a practice that takes up a lot of time at Aalborg Renovation, especially for project managers and team leaders. These types of meeting are used differently, but they all represent a practice of search for knowledge, resources, directions or decisions that can help them get their project going. The analysis of time management was experienced as a practice where the project, not initiated by the project managers themselves, which can be an explanation to their feeling of being busy, they may not have the overview of the project.

The last part of the analysis provided insight to how technical solutions can frame project management practice because it frames a limited room of possibilities, but still important in project success. It also shows very well; how political stakeholders changing signals can affect projects and put project managers under pressure.

## Chapter 4

# **Techno-Anthropological Project Management in Practice**

In order to discuss Techno-Anthropological Project Management (Hereafter, TAN-PM), this chapter will discuss the competences established in-between the user-artifact (Anthropology-driven design), Expert-artifact (Competences in Social Responsibility) and expert-user (Interactional Expertice) as described by Børsen (2013) (see figure 2.2). His framework is built on literature from the 'library of TAN', that is, the body of literature that inspires and serves as a foundation for the Techno-Anthropological field of research; this will play an important role in this discussion. The findings form the analysis of project as practice as Aalborg Renovation will be used as the empirical body of binding these TAN competences to project management in practice.

### 4.1 Technological and Material Sensitivity (1)

The analysis has shown that the material actors plays a significant role in the PM practice at Aalborg Renovation. Here the self-service solution defined many project activities, especially the IT-project where the task was positioned, but also the information project and the project on public procurement. The analyses also showed how the time opened the door for external stakeholders (Sweco) because they used the plan, and acted as if responsible for steering the project in relation to time and deadlines. As I asked for the time plan during fieldwork, I did it for the benefit of getting an insight into activities, in order to be able to compare planned activities in relation to the quality of the project and get an overview on activities I could aspect to participate in. As the only one who could deliver that insight was Sweco, the time plan established itself as some kind of a communication-device, used at status meetings to shape the project work at Aalborg Renovation. The analysis showed that it enrolled us in the Sweco planning and priorities.

As Rybirk (2015) define the project with elements as visualised in figure 1.1, I argue that all elements would or could be affected by material artefacts and therefore the material should be considered on all aspects of the of the figure. If we compare the effect of such an artefact in relation to the responsibility of a project manager described by Rybirk (2015) as the front figure, a supervisor, a spokesperson and a manager in control of resources and priorities I argues that the project manager would be helped by the ability to see these complex factors that a focus on

materially brings to PM.

TAN-PM gain a vocabulary for understanding the technological sensitivity from different, but similar, theories. First and foremost ANT, as used in the analysis of the project, brings an understanding of how both human and nonhuman entities together construct an actor in the process of translation (Latour, 1999). Callon (1986) focuses the process of translation into a more narrow and concrete use that can be related to project work by defining the four moments of translation: Problematization, Interessement, Enrollment and Mobilization. Callon gives us an example of translation analysis and furthermore gives examples of interested devices, which we can relate to how the Gantt diagram is used in the meeting practice that were observed in the analysis. Akrich (1992) gives us the concepts of script, inscription and description and shows us how a designer or the creator of an actor inscribes a script, but this is not necessarily what is described or understood as intended. Therefore, Akrich gives us an awareness of how the different translations and contexts also frame the description of object. The notion of Akrich can be used as an awareness of the translation we initiated in our projects. As an example, the project form was filled with scripts with thematic areas for PM-practice at Aalborg Renovation, but was not descripted as intended. This unsuccessful translation had consequences to PM practice and TAN-PM should be aware of such failing or unintended processes.

Others in the socio-technical field bring important notions to the TAN-PM. Leigh Star (2010); Bowker and Star (1999) would for example, consider the self-service solution as a boundary object. These

"(...) are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. They may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable—a means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds" (Bowker and Star, 1999: p. 393).

This structural view can be used by the TAN-PM as some kind of ideal for PM work in technology projects in order to increase awareness of the local sites where the technology should adapt the local needs. For example, Sweco, The Secretariat, Operation, Project and Development, citizens, businesses and refuse workers would have an individual use.

The last perspective that I want to bring in is post-phenomenological view. This focuses on the lifeworlds of humans and their relation to technology. Here, Ihde (1990) gives us a view on human-technology relations, and shows us how technology can be mediated in different ways. As refuse worker would seek the *background relation* where RenoTrack would help them in their daily work routines and ensure registration of activities, but wont be in their awareness, as it is meant in design and expected from team leaders in operations. What is important to bring into the PM-practice is the notion that the artefact's intentionality is not stable but multistable, and therefore the human-technology relation is established in the contextual settings (Ihde, 1990). This can be a useful tool when focusing on what people expect from technology.

Technology sensitivity in TAN-PM is a extension to the awareness of the silence actors that TAN-PM will see due to technology-sensitivity trained through a set of vocabularies, that when put into practice, can show us new and important perspectives to PM. The technology sensitivity should be represented when practising all competences described by (Børsen, 2013).

#### 4.2 Stakeholder Management (2)

In the analysis there was much focus on stakeholder management. The analysis showed the importance of awareness of stakeholders' effect on project practice among project managers. Rybirk (2015) divide stakeholder into internal and external stakeholders. If we do that, external stakeholders such as Sweco have a lot to say and are, from the background, very much in control of activities in the IT-project. The coorporation with Sweco also showed how non-human actors should be considered as stakeholders, and therefore the focus on technological sensitivity above. Citizens are also understood as external stakeholders; this perspective has not been a concrete part of the project practice I have explored, but instead is represented by internal stakeholders from the information project. Internal stakeholders, e.g., project managers form sub-projects and managers from different departments. Another internal stakeholder are the employees at Aalborg Renovation. There is much talk about them because the projects are in a phase where they should be bridged to operation, but I have not experienced a common practice on how to manage these stakeholders. The workshop meeting was though a positive experience, however. The political stakeholders were referred to by interview project managers as stakeholders with changing signals defined by interest, but also affected by signals from the management of Aalborg Renovation. A sudden need for a self-service solution was an example of that in the IT project in which I was very much involved.

In the Public Sector PM triangle by Rybirk (2015) stakeholders are part of the cornerstones of actors. In his descriptions of stakeholder management, he places a great deal of focus on the PM concerning stakeholders because they-at all levels of the project-are the ones that give the project substance. The most important notion we can take from Rybirk (2015) is awareness of the power factors that stakeholders represent in the project. This power and effect of the project is important in order for the project to have substantial impact. Here, he describes the project manager as responsible for: knowing stakeholders' values and interest, acting as accountable for stakeholders' interest because they ensure the project relevance, and, lastly, evening out the conflicting interest and values between different stakeholders. I can relate to that, but it is not my opinion that Rybirk (2015) tools in regard to this stakeholder management is enough. An example of a tool presented by Rybirk is the one presented in figure 4.1. I see this figure as useful in order to prioritise stakeholders and therefore also resources, but there is more to stakeholder analysis. Mitchell et al. (1997) are an example of a classical but more analytical approach to the stakeholder analysis with focus on: power, legitimacy and urgency as the factors defining the stakeholders' attributes in the project and helping with a framework for making descriptions of stakeholders. Here, power is considered an important factor and can give insight into a prioritisation of stakeholders based on these perspectives that Rybirk (2015) describes as important. I do, however, ask if the prioritisation of stakeholders of different parameters enough,



Figure 4.1: Sorting of stakeholders by (Rybirk, 2015: p. 190)

are that the same as stakeholder management? If we look into the TAN-triangle designed by Børsen (2013) in figure 2.2, the stakeholders are placed on the top, together with the users, in between *expert-user/stakeholder* and the *user/stakeholder-artefact*. I will, in this section, focus on the TAN-PM in-between experts as stakeholders, where the interactional expertise are at stake; later on, the Anthropology-driven design competences will be discussed

When dealing with interactional expertise, the TAN-PM draws his inspiration from different places. Collins and Evans (2002) focus on a new wave in science where the concept of experts is discussed in relation to who it is relevant to introduce in technical debates. As the third wave is built on a critique of both the age of academia, where only academics are experts (wave one) and the age of democracy, were a focus in public opinions is essential (wave two), they create suggestions for a third wave, where both experts and public opinions should be considered in the technical debates. This creates a need for the competences of interactional expertise with "enough experience to interact interestingly with participants and carry out sociological analysis". These interactions should be accomplished with experts with contributory expertise meaning "enough expertise to contribute to the science of the field being analysed" Collins and Evans (2002: p. 254). Even though Collins and Evans' work is related to academia, we can use the notions on competences as they are relevant for managing the debate between different experts and their notions of the right stakeholders to involve as it is the same discussion that Rybirk (2015) and Mitchell et al. (1997) makes. The additional focus on competences that Collins and Evans (2002) have led to a discussion of what interactional expertise competences consist of. Here, Collins and Evans (2014: p. 17) comment that, "The higher level rungs require immersion in the tacit knowledge of the specialists domain so that more tacit knowledge can be acquired".

Polanyi and Sen (2009) discusses the dimensions of tacit knowledge as an "(...) interpretative effort transposes meaningless feelings into meaningful ones, and places these at some distance

from the original feeling" (Polanyi and Sen, 2009: pp. 12-13). They use the terms of *proximal* to a description "(...) of which we have a knowledge that we may not be able to tell" and the term of distal to describe the knowledge that "(...) we are aware of that from which we are attending to an other thing, in the appearance of that thing" (Polanyi and Sen, 2009: pp. 10-11). It is important to consider here that tacit knowledge is difficult to tell and does also use of things and how we use them without thinking of how we do so. As interactional expertise is set to be able to gain insight into tacit knowledge, we must as TAN-PM be able to catch not only what people say, but also what people do. Here, the TAN-PM's ethnographic competences and dialogical approach are a tool for gaining that insight (see, e.g., Tjørnhøj-Thomsen and Whyte (2007)). In order to frame these ethnographic approaches, the TAN-PM must frame the investigations and stakeholder analysis. Here, Missonier and Loufrani-Fedida (2014) have shown how ANT can help in doing so by mapping the heterogeneity networks because they do not

"(...) recognising a stakeholder network and "organisation" as stabilised entities, we believe that people's actions are always locally defined and emergent, and that this local emergence includes the material as well as the social structures and processes" (Missonier and Loufrani-Fedida, 2014: p. 1110).

As TAN-PM are educated with interactional expertise, they should be able to use the insight to tacit knowledge that ethnographic methods can gain on stakeholders interest, power relation and values as Rybirk (2015) describes as important in stakeholder management and add a more complex understanding of unstable entities that, e.g., ANT can bring. Tools as visualised in figure 4.1 can be used, based on the more descriptive insights to create an overview or prioritisation of stakeholders and on which level they should be involved.

The involvement of stakeholders can be related to Anthropology-driven design competences (Børsen, 2013). As this competence is placed in between the product or artefact and user and stakeholder, it sets s focus on negotiating future expectation to the product ,with stakeholders-here, we discuss technology in practice. As I have already discussed, the ethnographic methods gain insight into the interests of stakeholders, but as design also plays an important role, TAN-PM should seek to establish stakeholders as co-creators (Robertson and Simonsen, 2013). As IT-systems in many cases seek to be something different for different stakeholders (here the TAN-PM would think it like a Boundary Object (Leigh Star, 2010)), we must seek to bridge the different horizons of how the technology should be used in practice (Aydin and Rice, 1992). Here, e.g., workshop methods can be used as a dialogical process where a negotiation of, e.g., values are set up (Iversen and Leong, 2012). This was the case when the project manager on public procurement arranged the workshop meeting. Here, internal stakeholders were invited to discuss the perspectives that he had chosen to be important. The ethnographic insight could here have been used as the body of knowledge for creating the workshop that would give stakeholders the possibility of making discussions that are framed on where complexities create barriers for the project (Gunn and Clausen, 2013). Principles such as ranking and scoring would have provided the project manager with a prioritised set of insights instead of just insights (Mikkelsen, 1995). This could have made it easier for him to hold single stakeholders' interests against the common interest.

To sum up, the TAN-PM should be able to bring technological sensitivity to the analysis of stakeholders and recognise that stakeholders are defined and emergent in the local context. In order to handle different stakeholders and experts the TAN-PM must be in position of interactional expertise. Here reflexive and analytically insight based on the ability to gain insight to tacit knowledge in field contributory experts is needed. Furthermore, the TAN-PM should be able to use ethnographic insights to create room for negotiation and prioritisation of interest in order to use stakeholders as co-creators in the project as this can help the TAN-PM find the right direction for the project.

### 4.3 Negotiating Resources (3)

In the practice described at Aalborg Renovation, the project manager, by default, do not have staff responsibility. This has been shown to be important to practice because it force project managers to initiate negotiation activities in order to get their project going. This practice was explored as a challenging practice for project managers because their visions for the projects and their practice could conflict with the activities in the daily work, e.g., in the Operations.

Rybirk (2015) has his focus on this conflict as a conflict between two operations: the operation of the project and the organisation's normal operation. Here, it becomes difficult to divide resources and therefore also to see who has the right to make decisions—are Operations, e.g., allowed to make decisions when they affect the project? The conflict can be filled with uncertainty and employees can experience that their daily operational tasks are removed on the behalf of project tasks. Rybirk (2015) urge project managers to be resistant about their principles and make an effort to explain the visions of the project. They should focus on involvement in decisions and recognise the uncertainties they are working with instead of denying them.

Once again, I argue that the ANT can bring something to how TAN-PM should act in the project work. Together with the understanding of heterogeneity networks of stakeholders, both internal and external, and a technological sensitivity, TAN-PM use ANT to narrow down the problem scope and hereafter initiate the negotiation of resources. Callon (1986) gives us a tool for this in his framework for translation mentioned earlier in section 4.1. Through his four moments of translation, he gives us two concepts relevant in the task of negotiating resources. The concept of Obligatory Passage Point (OPP) is the product, the question that must be answered, or something else that must be established before the all actor's problems can be solved and translation can continue. This focus is part of the problematization process where an analytical process must be carried out with the focus on mapping actors and their challenges and goals. This can be related to the stakeholder analysis and therefore underlines the need for a more analytic approach to stakeholder analysis and management. The concept of interessement device shows us that devices, in Callon's example scallops collectors, can be used as a strategic device in reaching the goal of enrolling actors in the translation process. If we go back to the example of a resource negation, the TAN-PM should be able to problematize actors' conflicting challenges and goals, establish OPS and, hereafter, work on the moments of enrolment in order to get the project going. Finally, at the last moment, mobilisation focuses on an established spokesmen that represents the translation and therefore ensure that the stakeholders' common interests



are mobilised in in the product (Callon, 1986). IT is my experience that this negotiation of re-

Figure 4.2: Quick analysis of OPP with insperation form Callon (1986: p. 20)

sources is between a project manager and team leaders or managers at a higher level. Therefore, the establishment of an OPP can lead the TAN-PM in the direction of focusing on, e.g., a specific actor to be able to solve all actors' obstacles. A quick analysis of the case of negotiating resources between the project manager on sorting and collection and the team leader form Operation in the analysis can be shown in figure 4.2. Here, the OPP are established as creating a responsible route planer, and educate refuse workers in RenoTrack. First, this could give refuse workers the possibility to report when containers are not sorted well enough and, furthermore, the route planer could plan routes based on the data that RenoWeb provides.

When the TAN-PM have found the OPP, he could, in this case, draw inspiration from the post-phenomenological notions on human-technology mediation. This can be a useful tool for a focus on the actor's relation to technology (Ihde, 1990). For example, how can refuse workers be made to use the RenoTrack and thereby provide data for other actors? We could do so by answering the questions: how should the technology be designed in order to fit the needs of a refuse workers work practice or how should we communicated the functions of RenoTrack so refuse workers will understand the technology in relation to their own work procedures. Verbeek (2005) bridges the two approaches from Ihde (1990) and Latour (1999) in his discussion on how they complement each other. He describes the difference as:

"Actor-network theory is primarily interested in unravelling the networks of relations by virtue of which entities emerge into presence, while a Post-phenomenological approach, by contrast, seeks to understand the relations that humans have with those entities—and for which the network of relations and interactions that allows the entities to emerge into presence is not the primary focus of interest (Verbeek, 2005: pp. 164-165).

What Verbeek shows the TAN-PM is how the two approaches can complement each other with

different agendas. First to map the network, and find OPS like Callon (1986) and here after understand the relation or intended relation between human an technology and how technology mediates the human lifeworlds.

To sum up, TAN-PM could, in the case of negotiation of resources, use Callon's moments of translation as a practical structure to focus on in his negotiation on resources. The more analytical framework presented can provide an overview of actors, goals and obstacles and that knowledge can be used as an OPP in the negotiation of resources.

### 4.4 Planning and Time Management (4)

In the interviews with the manager of the Secretary, he told me his notions about time management. Here, he told me that there in someway had become some kind of saying about being busy and that it was his opinion that employees at Aalborg Renovation were not more busy than other public sector organisations—maybe because they were inexperienced in work with projects. The practice analysis showed how the time plan was present, but not present in a form where project managers were in control of activities and deadlines. The time plan created by Sweco was very specialised and focused on technical tasks, e.g., transfering data from one system to another. Tasks that aimed to prepare Aalborg Renovation for a new practice with a new system were not part of the plan, as this it was not Sweco's responsibility.

We can once again bring in Rybirk (2015) as representing a classical approach to time management. Here, time is a cornerstone in the PM-triangle (see figure 1.1) and sets the frames for the use of resources. It can possibly define the perception of the project's effectiveness and ensure coordination between the actor's actions. He makes three descriptions of what role a time plan should play in a project and to the project manager. First, should the time plan be a central steering-tool; second, an essential part of communication; or, lastly, a symbol in the project? As the plan in some way always is expected in the project, it becomes a symbol of the project managers ability in clarifying project content and creates a trustability in project success (Rybirk, 2015). The time plan by Sweco was built as a Gantt-diagram, described as the most common tool and visualised in figure 4.3. Here, there is a divide between goal-hierarchies and more concrete planning gaining an insight into all tasks. As we have just established that there was a plan, but that the plan was managed by Sweco, and not the project manager from Aalborg Renovation, we may be able to explain why it is experienced as problematic in the analysis that the project manager is not in charge and in control of the time plan herself. If it is not trustable, then the symbolism that the plan should provide in the project is not present. Furthermore, Sweco was not responsible for the planning of tasks that would consider the human perspective and future practice with technology and, therefore, just following Sweco's plan means that there is a missing link in the implementation.

Sarin and McDermott (2003) have showed us why this is important in a discussion of project managers characteristics in relation to leadership and learning. The studies show that leaders who clearly articulate goals are better facilitators of learning, while leaders that articulate day-to-day activities, which could be understood as micromanagement, are the opposite. As the TAN-PM should aim for an implementation that also considers the humans relation and learning



Figure 4.3: The connection between project goals and gantt diagrams by Rybirk (2015: p. 212)

of technology, the planning of such tasks are important, but too much planning can have the tendency to shout down creativity and learning Sarin and McDermott (2003).

It is a Techno-Anthropological agenda to create space for learning in order for participants and affected employees to learn new possibilities in technology, and therefore time planning should be done with an awareness of the value in the unplanned. Having said that the time plan represents a translation between different actors and can be used as a device for enrolling project actors.

### 4.5 Bridging from Project to Operations (5)

In dealing with these challenges of bridging technology from a project status to operations, the Techno-Anthropologist should be considered as a Change Agent. Change is in the project triangle by Rybirk (2015), described as the result of the project and what we work towards in project work. I can relate to this, because having the TAN-PM technological literacy and technology sensitivity in mind, the result of the project should be technology in practice. By this, I mean an implementation project that is done because the technology is used in practice, and technology that is implemented because the iPad has been installed in the refuse truck. In the analysis, I mentioned my experience from the former project where I used Anthropology-Driven and participatory design methods in a preparation process that had a positive effect on the refuse workers sense of ownership or cura and their willingness to achieve change.

In the TAN-literature, the Anthropology-driven design methods, e.g., are described by Christensen (2013: p. 398) "as a design process where analytical findings derived from ethnographic field studies are used in combination with participatory design techniques". The ethnographic methods become a necessity design when we understand technology as something that refers to practice. If technology is practice, we have to understand practice in order to design useful technology. Participatory design (hereafter PD) is built on the understanding that the user or end-user of technology should be seen as co-creator of technology. This sets the agenda for design because research therefore must find a way to facilitate the user in the co-creation process. "Participatory Design is driven by social interactions as users and designers learn together to create, develop, express and evaluate their ideas and visions. Shared experimentation and reflection are essential part of the design process" (Robertson and Simonsen, 2013: p. 8) Many have created tools for facilitating these interactions between designers and users (see e.g. Sanders and Stappers (2014)).

Petersen (2015) brings in notions from PD in her discussion on Anthropology-Driven Design and Techno-Anthropologist as change agents. This is done from a perspective of health informatics, but we can still draw inspiration from this.

"Considerations on change are both important in how the researcher influences practice and how practice influences the researcher's in their perceptions of technology. Further change needs to be considered both in the planning, execution and reporting phases" Petersen (2015: p. 181).

The ethnographic tools in Techno-Anthropology vs. the more PD related tools are discussed as two different approaches that both can have effects on change. Asking questions as ethnographers do can have the tendency to make employees, users etc. aware of current situations in the organisation. Petersen (2015: p. 183) uses the example of her asking the question:

"How do the information systems change your daily work practice?. They both considered the question and then one of them said in an inquisitive voice. Oh yeah, they actually do that, don't they? I hadn't thought about it in that way"

In another way, PD methods have a desire to create something new and ensure co-determination, based on participant's own insight to practice. Here, the agenda can be more related to waht Aydin and Rice (1992), described as binding between different social world boundaries, e.g., different departments in the organisation. Even though questions and involvement can initiate change, it is still important to maintain a reflective approach to what the research experiences. This to ensure that the approaches used for anchoring change are related to the knowledge of practice (Petersen, 2015). One of the perspectives that we can use in the discussion on change and therefore the work with bridging between project at operation is the concept of technology stewards by (Wenger et al., 2009). Here the concept is presented in relation to learning and becoming part of a community of practice.

"Technology stewards are people with enough experience of the workings of a community to understand its technology needs, and enough experience with or interest in technology to take leadership in addressing those needs. Stewarding typically includes selecting and configuring technology, as well as supporting its use in the practice of the community" (Wenger et al., 2009: 25).

Wenger elaborates on these stewarding role in *streams of activities* that the steward can undertake. *Community Understandings* can be related to the kind on insight of unexpressed needs that Techno-Anthropologist can gain by ethnographic and participatory approach. I have in this fieldwork gained that insight by using participatory observation. This use of method has a strategic advantage that can establish close relation to individuals in the community. Technology Awareness is an idea of what is available and what is possible, as with the example with the workshop on public procurement where I was invited because I had an insight into both current and future functionalities of the new IT-system. Selection and installation activities are important, because the knowledge that the tech stewards are aware of from the community understanding and the technology awareness should be used for selection of the right path in decision. Here, the TAN-PM should represent, and be able to communicate, these insights, e.g., in meetings in the steering committee, or to the portfolio manager, in order to provide him with appropriate knowledge for coordination between sub-projects. Adaption and Transition are important in the discussion where project direction are decided; the steward must help the community adapt to technology. Here, the learning perspective plays an important role. For example, I was invited to the meeting where refuse workers were introduced to RenoTrack, which can be related to some kind of peer-to-peer training with the aim of adapting the system into operational work practices; TAN-PM should be able to handle these activities and to create space and usable forums for this adaption. Everyday use refers to an agenda of including new technology in everyday activities. The other streams are tools for this, where this stream can be related to a goal. In relation to the it-project, the aim is implementation and therefore everyday use. Even though that is the case, it is important to use this stream as a notification on the focus of bridging from project to operation because people can have the tendency to go back to old work practices. That the steward has to be part time, voluntary or paid is by Wenger et al. (2009) are an important reflection for the TAN-PM because it symbolises some kind of expectation and responsibility. As the the analysis showed how PM had a struggle for resources, the TAN-PM must consider his own as the available resources. Occasional visibility is important because problems will arise during change periods. Therefore, the TAN-PM has to be there and be visible and help the community move on in a positive way. Attention to technology use practice are important for the TAN-PM because there can be a mismatch between the understood or agreed use of technology. The consequences of this can be redesign of technology, where the TAN-PM should use his insight, or it could mean that work practice must be change in order to fit the technological functions. As an example, the refuse workers have had to change their work practice considerably in order for the new system to function. Lastly, the TAN-PM has to be a broker. "Good stewarding involves knowing who might know what and bringing into their community relevant perspectives, ideas, or possibilities from other practices" Wenger et al. (2009: p. 28). It can be related to the knowledge of who to involve, when and how. Here, TAN-PM should be able find participants that have motivation and therefore brings something to the design of the creation of change (Kanstrup and Bertelsen, 2011).

As shown in the discussion above, many of the perspectives in technology stewarding by Wenger et al. (2009) can be used in connection to Anthropology driven design methods and a more classical ethnographic approach—all tools that are part of the TAN-toolbox. In the position as a TAN-PM, one can use these methods with the aim of binding together different social worlds and use the tech steward role descriptions for navigating in roles as a change agent.

#### 4.6 Values Into Practice (6)

As the analysis has shown a conflict between two departments, Operation and the Secretary, we must consider how the TAN-PM should handle this. Conflicts are important to the TAN-PM because the conflict comes from different expectations for a new IT-system, and as the system should facilitate corporation between these two, this is problematic. Furthermore, the analysis showed a conflict between operation and the project manager on waste collection, sorting and departing, where she was aiming for a more flexible waste collection in order to ensure that correct sorted waste can be recycled. Here sustainability is core values of the "Aalborg uden affald" - project and therefore naturally a values that the project manager are working towards. In contrast to both the project manager and the Secretary, operation is thinking in an effective way about the waste collection being undertaken as quickly as possible. The TAN-PM should be able to see this and see how values can be conflicting. These can effect on the willingness to participate in the project and therefore also be a barrier for getting resources for the project as earlier. To communicate these conflicting values to the right person would be a benefit and important for TAN-PM in order to succeed in the project execution and achieve a technology as practice.

As social responsibility is part of the core competence in the TAN-triangle, TAN-PM should also be able to implement responsible parameters, such as sustainability, into practice (Børsen, 2013). Implementing new technology also means changing work procedures and designing a new practice. Values Sensitive Design (VSD) is one way to design based on values. Here, universal values in conjunction with understanding situated practice are used as the departure for design of technical objects, where designers go through a design hierarchy, build of values, norms and design criteria (Van de Poel, 2013). It may seem untraditional to use this approach in the case example from Aalborg Renovation mentioned above. But what VSD aim to do is translate values, though the step of norms into design criteria. When discussing the future with technology, we potentially initiate a discussion of a design of a new technology in practice (have the holistic technology literacy in mind here). Therefore, VSD can help TAN-PM frame a discussion on stakeholders' values, norms and therefore design criteria for a technology in practice. The VSD hierarchy can be used as seen in figure 4.4. This is just a quick sketch to show how the visualisation can be used as a tool for framing the link between sustainability and practice.



Figure 4.4: Quick Value Sensitive Design hierarchy on sustainability and waste collection

Botin et al. (2015) have discussed the competences essential for undertaking the VSD approach. Here, they make their notion on the importance of establishing someone that can create

first and foremost the hierarchy, but furthermore ensure that the values are related to stakeholders and concrete technology. Here, they establish TAN-Candidates as educated for this task, but add that the process should be handled as an interdisciplinary collaboration between different experts. Therefore, the TAN-PM should act as the facilitator of the process, where PD and cocreation are core activities. The TAN-PM can use the VSD-tools for both making values explicit, and also visualising to others how these values can be conflicting.

### 4.7 Framing Decision Activities (7)

The analysis has had its focus on meetings in different kinds of settings. Meetings are a tool that PM uses to get their project going by getting input from other employees in the organisation or make decision and direction for the project. As per my discussion on stakeholder management, negotiation of resources, planning and values have shown there are challenges in relation to changing signals and possible conflicting orientation on values and norms. Therefore, the TAN-PM must consider the right frames for the meetings and other activities that are used for establishing a direction for the project.

Workshop principles can be used in these situations, ensuring that everyone has a voice in the discussions and to use methods such as ranking and scoring for prioritising activities, tasks or focus areas for the project (Mikkelsen, 1995). It is my experience that you need courage to suggest these types of exercises in, e.g., steering group meetings. On the other hand, the workshop that I described, held by the project manager on public procurement, would have fitted well with such an approach, and would have given the project manager a better body of data to use in his work. TAN-PM have the skills for using participatory approaches and thereby for facilitating decision or directions for the project.

Ben Mahmoud-Jouini et al. (2016) have discussed how Design Thinking can compliment project managers work and showed us how a new paradigm of PM evolves whit inspiration form design principles. Here, they emphasise on how, especially, the stakeholder management and the exploration phase with benefit can find inspiration from the exploitative tools that come from design. It is, in some ways, the same discussion that I made above with the introduction of PD methods, making my comments on how stakeholder management should be more focused on gaining a deeper insight into stakeholder perspectives, and what they find important in the given context. But Design Thinking and PD have more to offer, as their tools are focused on prototyping and visualising based on empirical insight in order for decision makers to get a glimpse of the future (Ben Mahmoud-Jouini et al., 2016). As an example, I used process-diagrams in my former project to visualise a glimpse of what future-working practices, These were in at meeting between team leaders from the Call centre and Operation, and gave me the possibility to focus my pointers specifically on what I found important and where conflict could occur. This was based on my ethnographic findings, and the diagram was thereby used as a prototype. In the same way TAN-PM should, if they do the ethnographic work as I discussed earlier in this chapter, be able to communicate insights from their complex knowledge. This is important in order to create a better foundation for decision makers to give TAN-PM the direction for the project work.

## 4.8 Summary of Techno-Anthropological Project Management Competences

As a way of summarising the above discussion figure 4.5 visualises where the TAN-PM can be placed in the figure of TAN-competences from Børsen (2013). *Technology and material sensitivity* describes an awareness of the effect, that the material actors can have on the structures that a project consist of. This could be material stakeholders or the product and how the user expects this to work in practice. Undertaking *Stakeholder Management* the TAN-PM must be in position of interactional expertise, used in relation to reflexive and analytically insights. Here the TAN-PM must have the ability to gain insight to tacit knowledge and use this ethnographic insights to create room for negotiation and prioritisation of interest e.g. by establishing stakeholders as co-creators in the project



Figure 4.5: TAN-PM compared with TAN-Competences by Børsen (2013)

Callons moments of translation is a example of how theory can be used as a practical tool for focusing the TAN-PM's *negotiation of resources*. This framework can provide an overview of actors, goals and obstacles, which can be used as a focus point in the negotiation. The TAN-PM should undertake *Planning and Time Mangement* but should be aware not to plan too much because this can eliminate learning processes and creativity. Furthermore, the TAN-PM should be sensitive to the material agents that the time plan can represent in a project. When *Bridging form project to operation* the concept of technology stewarding is a example of how the TAN-PM's can use both interactional expertise, anthropology-driven design and social responsibility competences when working as a change agent. Here the steward concepts frame some stream of activities that the TAN-PM can initiate. *Values into Practice* describes the TAN-PM ability to see how values frame the expectation to technology, or when values are conflicting between stakeholders. The TAN-PM should be able to make these values explicit and work as a facilitator

when designing products or new practices based on values such as sustainability. Lastly, the TAN-PM should be able to use the complex knowledge that one possess to *frame decision activities* such as meetings. Here the TAN-PM should be able to communicated complex knowledge to decision makers, so they can set the direction for the project, or the organisation.

## Chapter 5

## **Discussion of Study and Conclusion**

### 5.1 Reflections on Quality of Study

Creswell (2008a) discuss the reliability, validity and generalizability on qualitative research. Here, he focuses on different strategies for how to keep quantitative research valid and reliable. As a addition to this discussion Sanjek (1990) also gives his notions on ethnographic validity, in which he uses three canons: *theoretical candour, ethnographer's path* and *field note evidence*. These two perspectives will be used in this reflection on the results of my study.

It we start with Sanjek (1990) and his notion on a theoretical candour, it is especially important to be aware of the theoretical perspectives that play a role in analysis and the way you navigated in the field. It also has the tendency to affect the methodological choices, e.g. what you choose to observe. Here, I have used the project as practice approach together with Actor Network Theory, as it was set to emancipate the material artefacts and their effect on practice. The ANT vocabulary provided the study with some specific spectacles that allowed me to see something specific and therefore, probably also oversee something else. As it have been my agenda to see the material agents ANT have been a fruitful choice for the study and in contrast to e.g. the post-phenomenological tools, like the human technology relation byIhde (1990) that in some way have some of the same functionalities, the ANT have provided me with a much broader vocabulary for exploring non-human as well as human actors. Having said that, I could have been more specific on when the theory was introduced to my project, which I believe is hard for Techno-Anthropologist, when it comes to ANT, because the vocabulary is a cornerstone in the discipline.

The discipline itself has been subject for this study and the discussion on how competences form the discipline can make a fruitful addition to project management practice. One should be aware that making studies on own discipline is difficult, first because the theoretical inputs in some way are given. As the idea of this project has been to compare own discipline with other disciplines, project management, and therefore creating new knowledge this have been necessary. Creswell (2008a) describes clarification of bias as the strategy towards better validity. Here, I have tried to introduce where I come from, both as a Techno-Anthropological-student, but especially as a student worker and intern at Aalborg Renovation. What one could argue is that I could have been more focused on underlining the bias, when I used my own experiences in the analysis. As a Techno-Anthropologist studying Techno-Anthropology, one could argue that it would have been easier to be critical on the theory of Techno-Anthropology if I were not educated in Techno-Anthropology. On the other hand, the purpose of the study has been to combine two disciplines, which is critical on the discipline because it points at a missing link in the Techno-Anthropological education and literature.

If we move on to ethnographer's path, it is presented by Sanjek (1990) as the importance of clarifying the path the study have taken. Here a data overview in appendix B have been important for doing so. In order to make it clear that the former project have been an important part in defining the scope of this project, the data collection activities from this project is also part of the data overview. Furthermore, the former project has given me access to the field and have therefore, been important for the possibility to place myself as a project management-assistant with a deep involvement in practice. The interview with the manager of Secretary was important, because it provided me with an overview of organisation and therefore gave me the ability to compare practice with structures; this could have been more explicit in my analysis. In addition to this I should mention that a coding of the data from my former project was an important part of preparing interviews with project managers. Using thick description by introducing field notes and quotes has been the strategy in my analysis for sharing my experience with the reader Creswell (2008a).

The use of thick description can also be related to the last candour by Sanjek (1990), field note evidence. The thick description provides a better link between the experiences, and the results of the analysis. The use of thick description have though been challenged by the need for translating data collected in Danish, as this is the language spoken at Aalborg Renovation, into English. Some meaning and choice of word are difficult to translate directly, and the thick description approach has therefore been challenged.

As I have collected data by interacting with different employees, project managers, refuse workers, department managers, external stakeholders, and regular employees I have been in contact with, I deal with the strategy of triangulation discussed by Creswell (2008a). As an example, I focused on the project managers access to resources in the analysis. Here, my field notes showed that a team leader that is also is a project manager have shown to have easier access to resources, this was further backed by another project managers statements about staff responsibility and her difficulties in negotiation resources with a team leader from Operations. I used the strategy of member checking to go back to some of my informants to check that my interpretation of practice was recognisable to them. That has not been the case with all informants though.

#### 5.2 Conclusion

The objective of this study has been to study how project management is undertaken in a public sector organisation, through a case study at Aalborg Renovation. This in order to compare Techno-Anthropological competences to the practice of project management and develop a framework for Techno-Anthropological Project Management. This led to the problem statement:

# How can Techno-Anthropological competences bring value to project management of technology projects in public sector organisations?

In order to proceed the problem statement, two focus areas were established. First, to understand project management practice at Aalborg Renovation, and hereafter to development a framework for Techno-Anthropological project management in practice. The conclusion will be divided into these two areas.

#### Concluding remarks on project management practice at Aalborg Renovation:

The analysis show overall difficulties in finding a common practice to project management at Aalborg Renovaiton. Projects in public organisations are divided into two main phases, a phase of initial planning and a phase of project operation. Changing signals from political stakeholders are a challenge for project managers as they can possibly change the project radically during the entire duration of the project. Stakeholder management are recognised as an important task to undertake in project management practice, but there are no common practice on this at Aalborg Renovation. Initiatives have been made to put focus on the importance of the stakeholder perspective among others, but these have failed to succeed. In one instance though, one project manager proved the value in involving stakeholders. Non-human actors have an important impact on project practice, e.g. through time plans and technical solutions such as the self-solution service, which has affected the project management practice. Getting access to resources are a challenge for project managers, but an even bigger challenge for non-team leader project managers because they have to persuade team leaders to pull out employees from daily operational tasks. Meetings are a tool for project managers to get their project moving on. Meetings are used to gain input for further project work and to get decision-makers to decide the projects path. Project managers spend a lot of time on meetings, and therefore, this practice is especially important to investigate when studying project management practice.

#### Concluding remarks on a framework for Techno-Anthropological project management:

The outcome of the discussion on Techno-Anthropological Project Management competences was seven competences that TAN-PM should posses. Here the TAN-PM should hold technological and material sensitivity as an awareness of the effect that the material actors can play on the structures that a project consist of. They should possess the competence of interactional expertise, used in relation to reflective and analytical insights on tacit knowledge, making the TAN-PM able to undertake stakeholder management based on complex understandings and stakeholder involvement. The TAN-PM have theoretical tools that can be used to focus the negotiation of resources on actors, goals and obstacles and therefore prioritise the negotiations. When doing planning activities, the TAN-PM should create room for learning instead of practising micromanagement, and consider the time plan as a close actor in the project. When bridging from project to operation the TAN-PM should consider himself as a technology steward and use interactional expertise, anthropology-driven design, and social responsibility competences when working as a change agent. In this work, there can be conflicting values that the TAN-PM should be able to make explicit. Here the TAN-PM should be able to facilitate design of new product or new practices based on relevant values. Lastly the TAN-PM should be able to communicate complex knowledge to decision makers, so they can set the direction for the project, or the organisation.

#### 5.3 Forward Discussion

As have undertaking this study with the objective of developing a framework of Techno-Anthropological Project Management, it would be relevant to consider how these results could bring value to the case organisation, Aalborg Renovation. It is my prediction, that simply handing over this report to a manager would mean that it ended up in the archives, or in a folder that a never will be opened on the computer. On the other hand, me asking questions and being around on site to study project management, can have affected the project managers to reflect on their own practice. I should consider my own results, telling TAN-PM's being able to communicated complex knowledge to decision-makers. Therefore, an, idea could be to create a project management guide that visualise my head pointers.

As an addition or an alternative, I could try to develop the role as a project manager assistant into facilitator of project management development. Here, an Actions Research approach could be fruitful to further research on how to develop project management in a public sector organisation. As the purpose by Action Research is to " $(\dots)$  to produce practical knowledge that is useful to people in the everyday conduct of their lives" and "(...) to contribute through this practical knowledge to the increased well-being - economic, political, psychological, spiritual of human persons and communities (Reason and Bradbury, 2008: p. 4) it would be fitting for my agenda and the membership role that I have already developed. As my results point towards a practice of more stakeholder involvement, this approach, can be related to what Creswell (2008b) calls an advocacy research approach that provides a voice for participant and (...) "raising their consciousness or advancing an agenda for change to improve their lives". Er et al. (2013) have beside Actor Network Theory commented on how an Action Research approach is well suited for change project management practice, because it is working as a collaborative approach in order to find practical solution to the problems. As I have now used this thesis to address some of the problems in project management practice, an Action Research approach could help me create changes based on this knowledge.

I started the thesis by describing how one objective was getting in touch with project management as a student on the Master programme of Techno-Anthropology. Furthermore, it was about getting experience and insight for future employment, and to bridge the learned theory and methods with practice. Having that in mind, I could find inspiration in Action Research when making the shift from a student to an employee and still bring along academic values into my own practice.

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## **Appendix A**

## Organisational Diagram, Aalborg Renovation



## **Appendix B**

## **Data Overview**

Data overview <sup>1</sup> , former project:		
Date	Information	
07.09.16	Meeting with Secretary Manager	
07.09.16	Interview, Team Leader Call Centre	
14.09.16	Project Meeting with Project Manager, IT	
04.10.16	Introduction Meeting (Preparation Process for Refuse Workers)	
06.10.16	RenoWeb Customer Conference, Sweco A/S	
16.10.16	Participatory Observation, Paper Route	
17.10.16	Participatory Observation, Garden waste	
08.11.16	Workshop, Refuse Workers	
15.11.16	RenoWeb course, Administrative workers	
17.11.16	RenoWeb course, Refuse workers	
21.11.16	Participatory Observation – start of operation (phase 1)	

Data overview this project:		
Date	Information	
09-01-17 - 26.05.17	Participant Observation	
15.03.17	Interview with Secretary Manager	
03.05.17	Interview with Project Manager on of the waste collection and sorting	
29.05.17	Interview with Project Manager on buried waste containers.	

1. The data overview contains scheduled data collection in addition to the mentioned activities there have been many ethnographic conversations with staff in the administration and the refuse workers