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Managing Stakeholder Communication in Construction Projects: A case study of a consultancy company

Master's thesis in the Master's Programme Design and Construction Project Management

ALEXANDRA LARM & ISMAIL FAKHRO

Department of Architecture and Civil Engineering
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Master's Thesis ACEX30-19-52
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Abstract

Managing stakeholder communication is a fundamental part of any construction project. As any aspect of consequence, it needs to be conducted in an effective way to ensure the success in the project development and outcomes. Therefore, it becomes important to investigate how project actors are integrated in a construction project, and to identify recurring barriers that hinder effective communication among critical stakeholders.

This dissertation, therefore, explores the stakeholder communication in the construction industry by testing the applicability of novel theories around managing stakeholder networks as a communicative perspective. It focuses on a case study of a consultancy company in Gothenburg, Sweden, using a qualitative and inductive approach. The report shows how communication channels are used by stakeholders and identifies the singularities and saliences of these as well as describes stakeholders as a network of emergent relationships throughout the project phases.

The case study was conducted by interviewing project internal and external project participants as well as to site visits and observations of meetings. Unsurprisingly, communication, both formal and informal, proved to be a critical factor for the performance of the project. An important finding, however, is how these two modes need to be carefully balanced and monitored throughout the phases of a project. Our study shows that if formal communication channels are neglected or disregarded, informal channels emerge and often supplant the former, increasing the risk of increased social communication barriers. On the other hand, too rigid a formal communication plan emphasizes structural communication barriers, and results in similar negative effects for the project. This study shows how important it is to ensure formal and informal communication by establishing a proactive and flexible formal communication plan that allows for informal communication channels to emerge. Both the plan and the informal channels need to be monitored. We suggest some recommendations for improving stakeholder management and communication in construction projects. To conclude, transparency between project members and building a repertoire of case scenarios to promote proactivity and learning experience are paramount to effective stakeholder management for projects.

Key words: Construction, Project Communication, Stakeholder Management.

Hantering av intressentkommunikation i byggprojekt: En fallstudie av ett konsultföretag

Examensarbete inom masterprogrammet Master' Design and Construction Project Management

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Sammanfattning

Att hantera kommunikation med intressenter är en grundläggande del inom byggprojekt. Detta måste det genomföras konsekvent och effektivt för att säkerställa ett framgångsrikt projekt. Därför är det viktigt att undersöka hur aktörer i ett byggprojekt integrerar med varandra och därmed identifiera återkommande barriärer som hindrar effektiv kommunikation bland dessa viktiga intressenter.

Denna avhandling utforskar därför intressent-kommunikationen inom byggbranschen genom att testa tillämpligheten av nya teorier, som behandlar intressenter i ett kommunikativt nätverksperspektiv. Den fokuserar på en fallstudie av ett byggkonsultföretag i Göteborg, med hjälp av en kvalitativ och induktiv metod. Rapporten påvisar hur kommunikationskanaler används av intressenter och identifierar deras singulära kännetecken samt beskriver intressenter som ett nätverk av framväxande relationer under projektfaser.

Fallstudien genomfördes genom att intervjua projektets interna och externa deltagare i ett specifikt projekt, samt genom platsbesök och observationer av möten. Det var överraskande att både formell och informell kommunikation visade sig vara en kritisk faktor för projektets prestanda. Ett viktigt resultat är emellertid hur dessa två olika kommunikationssätt måste balanseras noggrant och övervakas genom projektets faser. Vår studie visar att om formella kommunikationskanaler försummas eller ignoreras uppstår informella kanaler som ofta ersätter den formella, vilket förhöjer risken för ökade sociala kommunikationsbarriärer. En alltför rigid och formell kommunikationsplan förstärker å andra sidan strukturella kommunikationshinder och leder då till liknande negativa effekter för projektet.

Denna studie visar hur viktigt det är att säkerställa formell och informell kommunikation genom att upprätta en proaktiv och flexibel formell kommunikationsplan som gör det möjligt för informella kommunikationskanaler att komma fram. Både denna plan och de informella kanalerna måste övervakas. Vi rekommenderar därför en förbättrad intressenthantering samt kommunikation i byggprojekt genom ökad transparens mellan projektmedlemmarna och uppbyggandet av en repertoar av fall-scenarios. Detta, för att främja proaktivt förfarande och lärande erfarenhet vilket är avgörande för effektiv hantering av intressenter i projekt.

Nyckelord: Byggnation, Projekt-kommunikation, Intressent-hantering.

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First and foremost, we would like to thank Prof. Christine Räisänen for her support, motivation, passion, and knowledge. Her guidance and dedicated involvement helped us in all the times of research and writing to accomplish this thesis.

The basis for this research originally stemmed from our passion to develop and investigate stakeholder communication flow in the construction sector. To test the theories in the construction industry, we collaborated with a company in western Sweden which shared an interesting case to study with us. The project was carried out at the Department of Architecture and Civil Engineering, Chalmers University of Technology, Sweden. We would like to thank the company we collaborated with and everyone working there who provided us with all the necessary information and gave us beyond what we could ask for.

We are grateful to all of those who taught us during the previous two years in the master's program Design and Construction Project Management, and all of our family members who supported us.

Alexandra Larm, Ismail Fakhro, Göteborg,
May 2019.

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1

Introduction

Construction projects can be quite chaotic. This organized chaos is noticeable if we consider a construction site, with all the materials, flows of people and deadlines to keep the work rhythm. In such an environment, with so many activities being performed simultaneously, an extensive exchange of information occurs. Communication therefore becomes paramount. Construction projects are characterized by their high complexity and alleged uniqueness, which contribute to a generally uncertain environment (Mok & Shen, 2016). Moreover, a construction project involves multiple individuals and entities with different goals and expectations, who are committed to jointly execute a mission for only a temporary span of time (Dainty, Moore, & Murray, 2006). The effect of this temporary collaboration is extremely important when we look into communication issues. Why, there is often no time to address problems in a very structured way, contributing to complex flows of information between the various participating actors.

Besides this, the divergence in attitude will make these actors, the stakeholders, inclined to influence the project according to their agendas, which presents a challenge to the project and its performance (Olander & Landin, 2008). Nearly all of the literature concerning the management of people contains directives and principles for effective labor and stakeholder communication. Hence, communication is a crucial part of a project because it is essential for achieving coordinated goals, motivating stakeholders, understanding the stakeholders' needs and managing change. Nevertheless, miscommunicating and managing stakeholders often lead to disputes and project failure (Mok & Shen, 2016). "The complex, relational, and lengthy process of designing and building makes construction a process in which disputes are virtually ensured" (McManamy, 1994). Communication plays an important role between project participants in each dispute or conflict. Therefore, communication is an essential, although invisible tool to build a strong network that can solve problems during the construction in a cohesive and faster way.

Accordingly, to ensure an effective communication, stakeholder relationships, channels of communication, and communication barriers must be investigated in parallel to project phases to identify the problem roots. The current study builds on stakeholder communication literature and a case study of how a middle-sized consultancy company in the construction sector manages communication with its main stakeholders. The study is focused on one project, with the purpose to replace pipes in the buildings of a large tenant-owned association in Gothenburg, Sweden. At the time of this study, the project was in the construction phase, and due to a number of conflicts most of the project members were at one point replaced, entailing a kind of re-start, i.e. a construction phase 2, (see Ch. 4 and Fig. 4-2, p. 25).

The new team had to start all over again, building their communication and acknowledging their peers. This is a very interesting case by itself, but the reason for choosing this particular project was due to the possibility of interviewing actors of relevance, including those that were no longer currently active in the project due to the re-start. This enabled us to obtain a retrospective view of both the planning phase and events prior to the need of a re-start, revealing a new perspective on the course of actions. The data was collected through interviews with the main actors in the project as well as observations of meetings and activities. The interviewees from the consultancy were communicators, project managers, a project coach, and a chief executive; from the appointed contractor, the project manager and site manager were interviewed. In addition, the representative of the tenant association was interviewed to speak for the client side.

1.1 Purpose

The purpose of this study is to investigate how stakeholder communication in construction projects is managed at a project management consulting company in Gothenburg. The choice of construction as the field of study is due to the dynamic and uncertain project environment prevailing in the field (Kerzner, 2013) and the need of examples from the actual practice of project management, i.e. empirical examples from the field.

The communication needs and evolving stakeholder relationships in such a project make it an interesting case to explore in terms of the evolving of an emergent stakeholder network and how communication is managed over project phases. Many companies work with communication based on a formal plan (Leech, 2005), realizing problems and conflicts too late.

Moreover, we aim to examine how stakeholders are managed, what kinds of communicative channels are used and why, and what barriers hinder effective communication among stakeholders in a fairly typical project within construction. We also suggest some ways in which these barriers could be avoided. To fulfil this purpose, we pose two research questions:

RQ 1. Who are the main stakeholders and how are they managed?

RQ 2. What are the communication barriers and how can they be overcome?

The study is delimited to the first two phases of a specific project case, and examines the way stakeholder were determined and evaluated, how they were managed, and their communication plan.

1.2 Report Structure

The thesis consists of 7 chapters as follows: The first chapter, the introduction, briefly describes the problem and provides the rationale of the study. It states the purpose and the research questions posed. Chapter two presents the theoretical framework which draws on stakeholder management, emerging stakeholder network and stakeholder communication. Under the stakeholder communication, we elaborate on communication formality, present a network framework, and communication barriers. Chapter three describes the method used including sampling, interviews, interviewee positions and the ethical considerations as well as how the data was analysed. Chapter four covers the contextual part of the findings. Here we present a brief of the company and the case study to show how the case was selected, its project phases, communication channels between actors, and the main events of each phase. In chapter five, the second part of the findings are presented based on the interviews. Here we also elaborate on the tools used to elicit information from the project actors. The reason we have placed this information here is because it enables a better understanding of our presentation of the empirical data. The communication and project concerns throughout the project phases studied are explained, as are the barriers we perceived. This chapter ends with a synthesis of the findings. In chapter six, we discuss the findings in terms of the theoretical framework from a barrier's perspective, ending with an overall summary and reflections on limitations. Chapter seven presents the conclusion and possible further developments and recommendations.

2

Theoretical Framework

This chapter introduces and describes some theories relevant for stakeholder communication, and on which we draw to frame this study. If effective stakeholder communication is to be achieved, it is necessary to understand the three key components: stakeholder communication, stakeholder management

2.1 Approaching stakeholder communication

Stakeholder communication is a complicated process that encompasses information that flows between an organization and all its external actors. As Koschmann and Kopczynski (2017, p.1) state: "almost any communication situation could be considered stakeholder communication because the participants involved all have some sort of stake in the interaction that prompted the interaction in the first place". Moreover, stakeholder communication reflects how organizations manage their responsibilities and relations. Consequently, it includes the process of fostering the relationships which are necessary for the organization's growth, competitive advantage, performance, and ethical responsibility (Koschmann & Kopczynski, 2017). This is equally applicable in a project.

Communication in construction is particularly complex because of the nature of construction projects. In the construction industry, which is characterized by its allegedly unique projects and convergence of divergent actors (Dainty, Moore, & Murray, 2006), stakeholder communication becomes crucial since a project constitutes an immense exchange of information between the participating actors (Karlsen, Græe, & Massaoud, 2008). Everyone who participates in a construction project is automatically part of an extensive communication network. Stakeholder communication, therefore, includes the management of all interactions and relationships between project participants.

Stakeholder communication is first and foremost understood through the components that construct it: 1. Communication, and 2. stakeholder management. In order to integrate stakeholder communication, these two components need to be explained and understood separately to provide a full

description of stakeholder communication. This, because most current stakeholder communication theories are founded on a stakeholder management basis and therefore include a communication perspective, as illustrated in fig 2-1.

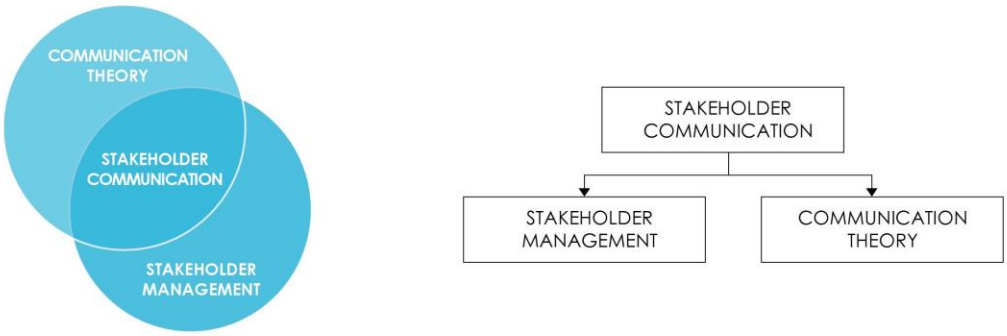

Figure 2-1: Stakeholder Communication as a linkage between stakeholder management and communication. Author's own copyright.

In this study, we draw on an approach to stakeholder management which focuses a relationship-centered perspective. With this approach, stakeholder management and communication are first dealt with separately, as shown in fig 2-1, to increase understanding of the respective constructs. Further, the formation of communicative networks was traced in order to grasp dynamic shifts and underlying casualties in the stakeholder communication of the project studied.

2.2 Stakeholder Management

A stakeholder is often described according to Freeman's definition, as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p.32) Consequently, this means all those who have a legitimate stake in a project and not only the actors directly involved in the project execution (Dainty, Moore, & Murray, 2006). However, more recent research has noted that assessing a stakeholder's legitimate claim in a project or an organization is not simple (Daly, F. et. al. 2003). Certainly, questions regarding what "a claim is" and "what counts as" a legitimate stakeholder are complicated and much debated topics. Regardless, Freeman's theory is one of the starting points for stakeholder theory as a descriptive means of explaining the stakeholder concept (Koschmann & Kopczynski, 2017).

Stakeholder management has in the past decade become an important perspective on how companies and organizations could perceive themselves, and how they

could do better business. This is explained by instrumental theories of stakeholder thinking first proclaimed by Donaldson and Preston during the 90s, describing the interrelation between stakeholder management and corporate profitability. It can further be understood as a cause and effect theory; "if certain practices are carried out, then certain results will follow" (Donaldson & Preston, 1995: 74). The instrumental perspective is complemented by a descriptive and a normative approach, which together highlight salient aspects of stakeholder theory.

According to Mitchell (1997), stakeholder salience focuses on characterizing stakeholder attributes through power, urgency, and legitimacy. From these factors, stakeholders can be characterized and sorted into certain groups that determine their importance and salience, as either latent, expectant or a definite stakeholder (Koschmann & Kopczynski, 2017). However, analyzing stakeholders according to these attributes, and with an organizational perspective may lead to bias since they build on subjective assumptions (Mok & Shen, 2016). Yet, these two theories remain the dominant and most notable contributions to stakeholder theory. Since the development of these theories, research in this field has continued in several directions, where a prominent idea is the re-evaluating of stakeholder relations and its foundation (Koschmann & Kopczynski, 2017).

Stakeholder management is needed for the collection of information and the management of people in a project. Since projects depend on input from participants with various expertise and likewise on responses to outputs. To better understand the stakeholder environment, analyzing stakeholders becomes significant (Luyet, Schlaepfer et al. 2012). A common process for analyzing stakeholders is shown in fig 2-2.

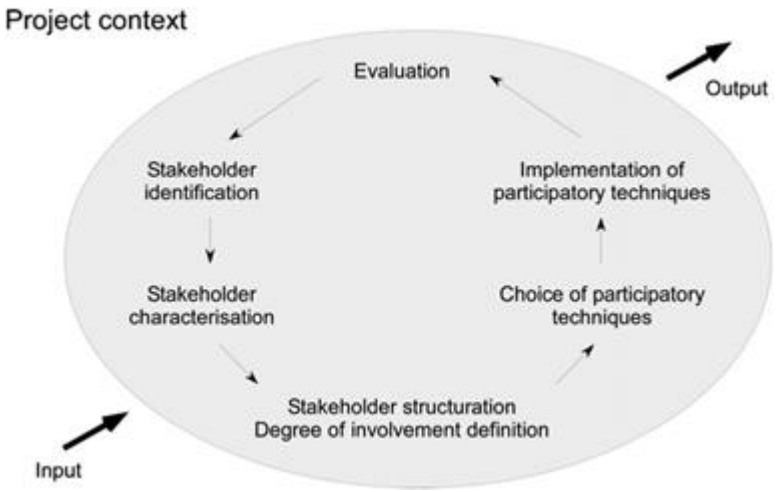

Figure 2-2: Proposed stakeholder participation framework (Luyet, Schlaepfer et al. 2012, p.214)

Analyzing stakeholders usually follows a process sorted into four steps: 1. Identification. 2. Characterization. 3. Definition of involvement (Luyet et al., 2012) and relationship (Mok & Shen, 2016). 4. Participatory techniques and evaluation (Luyet et al., 2012). However, many of the frameworks for analyzing stakeholders have not been conceived with construction project in mind and are rather fixed, with little flexibility throughout the project execution. Relationships in a project will naturally evolve and develop during the project lifetime and the stakeholders enter and leave depending on the phases. Therefore, recurrent monitoring of stakeholder analysis is required. Moreover, previous theories on how to analyze stakeholder relationships and interaction have focused more on formal relationships, based on hierarchy and the allocation of resource, rather than on the informal relationships that constitute the everyday communication in the project.

With increased calls for transparency as well as globalization, how to analyze stakeholders and the extent to which these are engaged warrants more research. Increasingly, organizations realize the benefits of more participation in projects and business operations due to input values like increased knowledge, high-quality decisions and equity (Reed, 2008). However, more participation does not necessarily equate with better results or that organizations are taking greater responsibility. Greenwood (2007: 315) stated that "the more an organization engages with its stakeholders, the more accountable and responsible that organization is towards these stakeholders". Indeed, the organization should, therefore, make careful strategies for how to engage relevant stakeholders, a factor which may be neglected when an organization's stakeholder management strategies and practices are planned.

2.3. Stakeholder communication

Various stakeholders have diverse interests in a project, and to ensure that they obtain the required data relevant to their needs, effective communication is required. Stakeholders must recognize what a project and other actors are trying to achieve or deliver.

2.3.1 Necessity of Effective Communication

Effective communication is about the availability of relevant information to the right stakeholders at the "right time and in a cost-effective manner" (Kerzner, 2009, p. 232), and it aims to keep reinforcing stakeholders' understanding of the project deliverables (Rajhans, 2018). Communication is essential for human interaction, but effective communication ensures that the message is received and perceived

correctly between sender and receiver. To achieve effective communication, both the sender and the receiver should be involved in transforming the information and feedback, which is often defined as two-way communication. Conversely, in one-way communication the information is transferred in one direction only, from the sender to the receiver, without an opportunity for the receiver to provide feedback. This mode is more dominant in vertical hierarchies in organization, where the communication is sent downwards (Foulger, 2004).

Effective communication is vital for projects; it ensures and enhances interaction and understanding between all the project parties. It is a major target to avoid misunderstandings and conflicts. It is more than just exchanging information; it also brings the understanding of emotions and the person behind the message. According to PMI (2013), effective communication to all stakeholders is the most crucial success factor in project management. Organizations are aware of the significant importance of effective communication, and they cannot implement strategic initiatives without it. It is a core competency that connects project members to strategic goals and actions (PMI, 2013).

In a report by the PMI (2013), they compared the outcomes of companies in the United States when maximum and minimum effective communication were used. The results were significant, with high effective communication projects meeting 80% of their goals; 71% being on time, and 76% on budget. Minimum effective communication showed that only 52% of the projects met their goals; 37% were on time, and 48% were within the budget. This study demonstrated the importance of effective communication, and the role it plays toward successful outcomes.

2.3.2. Formal and Informal Communications

Organizations are concerned with their communication flow, such as the words, symbols, and messages transferred between its members. Infrastructure plays a major role in shaping this communication. According to Leech (2005) informal communication is the most dominant in organizations. This type is also known as ''grapevine'' because it denotes informal means of information circulation and grows spontaneously and organically between different persons in teams, and it is largely tacit and not recorded or documented. There are therefore no explicit traces.

In contrast, formal communication refers to the communication flowing through official routes in organizations. More often, it takes place between employees and their managers with the objective to provide increased efficiency in organizations

in terms of documenting, archiving, and informing (Dainty, Murray, et al. 2006). It is codified and disseminated in written form such as documents, reports, and personal messages. This form can be traced and used to hold employees accountable.

Formal and informal communication are both vital in any type of organization. The former typically, and as mentioned earlier, dominates in a vertical hierarchy in organizations where the orders are given top-down. It is mostly a one-way communication, explicit and documented (Krackhardt and Hanson, 1993). Informal communication is more prevalent at the horizontal level where this type is used in day-to-day activities between people working closely. It generally remains undocumented and aims to convey messages in an easier, immediate way between colleagues, and is often known as ''to walk the talk'' (Hooper, 1990). There should always be a balance between both in projects, but the mechanism and degree of formality differ from a project or a team to another. Jeyachandran (2012) distinguished between formal as being the ''skeleton'' of a company, and the informal being the "central nervous system'' which drives the collectives through methods. Deeper involvement in the organization's balance of both formal and informal communication should be further looked into by the organization and the project managers (Cheng et al., 2001).

Structural and functional characteristics of communication determine the level of formality. The structural characteristics include the relationship among the participants and their social connections. The levels of formality are formed depending on the frequency of communication. Figure 2.4 illustrates the characteristics of formal and informal communication. Informal communication tends to be rather random without a planned schedule and remains undocumented and unrecorded. It is important to note that informal communication may result in ambiguity and lack of clarity as well as blurring of messages.

Figure 2-4: Differences between formal and informal communication. Author's own copyright.

2.3.3. A communicative network perspective to managing stakeholders

Stakeholder analysis with a communication perspective is an emergent process, where characterization is determined based on how the involved actors identify with each other. Identification and characterization of stakeholders are established through common targets and associations. As explained by Koschmann et al. (2017, p.9): "Identification is the perception of oneness or sense of belonging with another, where an organization defines itself in terms of relationships with other stakeholders". Salience is thus determined as a feature emerging from these relationships and legitimacy is assessed depending on the extent to which actors establish and regard their relationship with each other. This constitutes a more flexible approach to stakeholder analysis, in which relations between stakeholders are better understood through a communicative network rather than through subjective characterization in a focal organization perspective (Koschmann & Kopczynski, 2017).

Much of today's research builds on aspects of stakeholder theory by Donaldson and Preston and the salience model by Mitchell for understanding and identifying stakeholders (Koschmann & Kopczynski, 2017). Accordingly, most stakeholder management approaches are focused on perceiving the stakeholders from an organizational perspective, where stakeholders are identified, characterized and evaluated through a step-by-step process. Instead of taking a communication perspective to stakeholder thinking as illustrated in fig 2.5., a communication perspective is rather a corporation that exists in a complex network where organizations and stakeholders are interconnected in a web-like system, where the center of this web is not necessarily the said organization (Koschmann & Kopczynski, 2017).

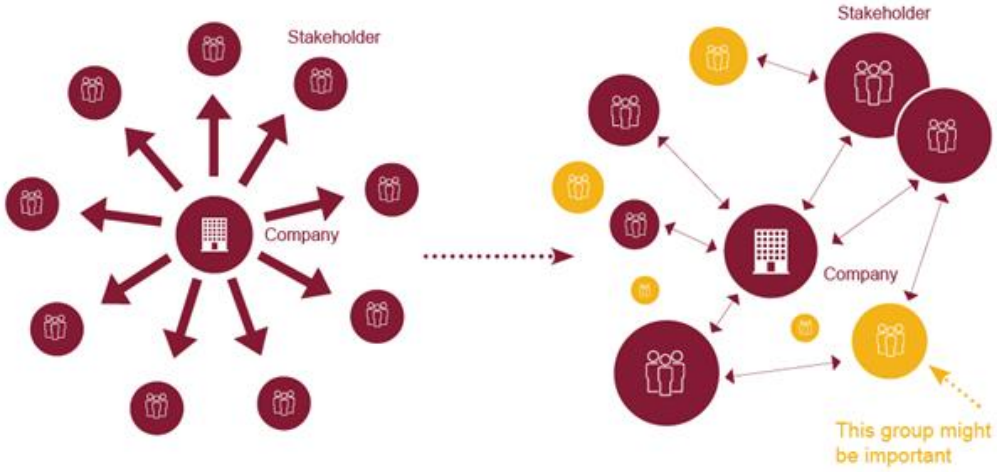

Figure 2-5: From stakeholder center perspective to network perspective (BSR, 2016, p. 23)

Although the network perspective is not new, it is an attempt to rethink previous theories on stakeholder thinking. Further, new stakeholder thinking recognizes that projects and organizations are constantly changing and are dynamic, making individuals and entities in them impossible to statically classify. Rather, stakeholders are much more likely to possess several roles and identities in relation to the organization, depending on situation and interaction, and are consequently salient in different ways (Enright, McElrath, & Taylor, 2016).

A communicative perspective on stakeholder analysis can aid in the understanding of stakeholder interaction, cause-and-effect issues, and how stakeholders affect the project delivery result. With this said, it is evident that communication and other factors like trust are crucial aspects of communication-network theory to stakeholder management (Mok & Shen, 2016). Comprehending the interrelations of stakeholders, as well as the network picture, will aid organizations not only by providing knowledge and understanding, but also to be able to anticipate changes, identify potential collaboration partners, and provide means for sustainable growth.

Network analysis is a tool based on network theory to identify interdependencies between stakeholders and analyze the implications of these relations (Dogan et al., 2015). This method comprises four major steps:

1. Identifying the network boundary e.g. the main stakeholders and project issues such as the project goals, environment, and constraints.

2. Mapping the interdependencies of stakeholders and relationships. This step is the most important and is divided into two parts that should be dealt with in parallel as they complement each other's results and help identify key stakeholders such as the central connectors and boundary spanners.
    a. Network-theory based analysis of stakeholders to pinpoint critical concerns.
    b. Social network analysis of stakeholders: knowledge exchange relations are investigated based on several factors such as frequency, knowledge quality, and appropriateness of access. In particular cases, the flow of data and communication are studied. This analysis aims to identify key stakeholders. The network measures to identify stakeholder knowledge network include also density which measures the ratio of current linkages between

network nodes and knowledge. This implies that denser networks have higher knowledge exchange and higher interconnections.

3. Network analysis results are synthesized, and the outcome is to list the key stakeholders, their knowledge transfer role in the team, and their critical issues.

4. Stakeholder management strategies are developed to form proper management and accommodate stakeholders.

To conclude, stakeholders must be identified according to the network-analysis tool, then mapped on a network to show the nodes and interdependencies between stakeholders. Afterwards the networks are summarized, and a proper plan is developed. The adaptation and use of this method for our study are shown in described in ch. 3.

2.3.4. Project performance

The purpose of understanding and including stakeholders' decision-making is to strengthen project quality through social learning and the use of suitable technical solution. Proper decision-making is one of the keys for project success (Luyet, Schlaepfer, Parlange, & Buttler, 2012).

Project success is commonly defined by achieving objectives within the stipulated budget, time, and quality. These three factors are widely known as the triple constraints (Luyet, et. al. 2012). There exist multiple approaches and tools for handling the triple constraints, and most managers are familiar with these and have the appropriate formal knowledge to manage the constraints. Today, however, many projects are required to fulfill the organization's strategic goals and not merely the project's goals. These failures are due to many causes, such as unfulfilled objectives, terminated construction, or because the project was deemed unsuccessful even though it went as planned. One reason may be the neglect of managers to sufficiently take into consideration the interests and motivation of stakeholders. Therefore, project individuals and entities need to be understood and managed with more engagement (Eskerod & Jepsen, 2013).

2.3.5. Reasons for Ineffective Communication

Ineffective communication and barriers lead to communication gaps by which the meaning intended by the sender is understood differently by the receiver (Rai and Rai 2008). The gap of communication could be due to one, or several combined

barriers. In organizations, the importance of effective communication is well recognized, but there is still difficulty communicating with the appropriate level of clarity and detail (PMI, 2013).

When the meaning of a message is not decoded as the sender intended it to be, or the idea behind the message is not understood, there is a gap which will continue to increase between the actors. The effects of a gap can often lead to project failure (PMI, 2013). Generally, the most common gap is the perception gap, by which the receiver fails or misinterprets the meaning of the sender due to the lack of far-sighted others' frame of reference. It basically means that messages are not understood the way they are meant to be; each person interprets in his/her own way and then develops his/her own thoughts and plans based on this interpretation, leading to conflicts and ultimately unattained project goals. The knowledge gap is another form of perception gap, by which the intent is also misinterpreted due to a shortage of knowledge. This type of gap often occurs between people who have different knowledge backgrounds related to a certain topic or idea (Rai and Rai 2008).

2.3.6. Barriers to effective stakeholder communication

A project will be affected by external factors regardless of scope, budget, or plan. As mentioned by Vogwell (2003, p.1): "the project exists within a political environment, populated by those who have a particular stake or interest in the outcome of the project". Thus, the expectation that all participants in a project should have the same needs and objectives is not very likely (Vogwell, 2003). Participants will have different ideas and opinions on how the project is to be executed to achieve a successful project outcome. This could create issues in the communication among these actors – the stakeholders. Thus, stakeholder communication faces several barriers to effective communication both initially and throughout the whole project process (Rai and Rai 2008). There is a multitude of factors that hinder effective and efficient communication, which they commonly create situations based of confusion and misunderstanding, engendering "a gap" in understanding. To achieve effective communication, this gap must be minimized or in the best of world eradicated.

There are barriers to communication which are of different kinds and possess various kinds of characteristics, the most relevant of which are identified in table A-1 in the Appendix. The identified, most relevant barriers stem from the literature and have been categorized and sorted into two categories. This would identify what type of barriers are being referring to, and how could it be targeted,

since a barrier do not exist by itself. It is always a set of barriers resulting in ineffective communication. The two categories are analyzed as follows:

1. Structural Barriers

Structural barriers are a physical, semantic, or organizational structure such as hierarchy and channels. Physical and environmental barriers apply in the environment and media in which communication is taking place. These include various communication forms such as oral and written, in addition to the communication parties. The medium in which the communication process is taking place must be effective and appropriate.

Semantic barriers include language, vocabulary, and jargon as the main elements. For example, if someone speaks only Swedish and some colleagues or site workers speak English, there will be language barriers that make it hard to perceive e what is meant behind the message. Moreover, this could happen between colleagues who also speak the same language, mostly on construction sites, among the working crews which use different technical terms to the terms used in the office or in documentation, often noted as jargon. It is vital to use language understandable by all the parties, which means avoiding vocabulary and jargon that could be wrongly perceived.

Lastly, the most critical element is the organizational barriers which determine the level of formality in organizations when communicating vertically or horizontally. There should always be a balance between both, as formal communication follows a long chain of communication, it consumes much more time than informal communication and may cause delays. In some cases, the message is sent to several persons before reaching the intended receiver, following a long chain of communication, which might be affected by the confusion when transmitting a message, often known as “Chinese whispers”. Alternatively, informal communication could cause confusion due to the informal language and miss of documentation. Generally, the bigger organizations and longer the chain of communication the harder it is to communicate.

2. Social Barriers

Social barriers encompass power and affect and include attitudinal and perceptional barriers, where the perception of certain individuals is formed by different factors such as culture, attitude, stereotyping or halo/horns effects. This

is often due to the limit the receiver sets when receiving a message. It is firmer to accept the message when it conflicts your beliefs or the cognitive dissonance, that is why the receiver tend to block part of all of the perceived message due to his dissimilar beliefs. An example of this is anger or defensiveness, which limit the ability of a person to accept explanations or feedback offered by others. Another example is cultural diversity. Cultural diversity complicates communication as the people's mindsets from different cultures are diverse, which affects the way they perceive messages, symbols, and body language (Huczynski and Buchanan, 2001: 183). Moreover, emotional barriers are often dominated by psychological phenomena. People seek to be much more comfortable with harmony and rational thinking, which leads often to coloring or shaping perceived messages to meet their own beliefs. For example, a person receiving a message might intend to change the meaning of the received message to suite his beliefs, although it might be completely opposite, that often results in misunderstanding.

3. Summary

Communication barriers in the construction field could be divided into structural and social barriers. While structural barriers focus on the physical aspects of communication, social barriers focus on the psychological aspect such as cultural and attitude. Structural barriers could be more controlled than social barriers, since structural barriers belong to existing physical environment and organizational structure that are targetable, but culture and attitudes are more resistant to changes (Dainty, Murray et al. 2006). The main targets in structural barriers are the communication plans and organizational hierarchies which should be set to fit the project organization. In the case of social barriers, the target is culture and prejudices that limit perception. It would be beneficial in this case to round the view between the actors and narrow the cultural diversity or cognitive dissonance among different team players.

3

Study Design & Methods

The strategy for this research was to conduct an interview study with an inductive interpretative approach in order to get a deeper understanding of how the studied company manages external communication with their stakeholders, as well as how project members perceive communication.

3.1. Background Research

Three exploratory interviews on communication and its perceived impact on construction performance at the consultancy company was conducted prior to the design of empirical study in order to get an overview regarding the context of the study and the role of communication in projects. This was done to understand how, why, and when communication occurs as well as to whom the communication is directed in a construction project, and thus to establish the focus from which to direct our main research.

3.2. Research Design

With an inductive and qualitative approach, interviews were regarded as the preferable way of collecting data. Accordingly, Bryman (2012) states that the interviewing method is the most employed for qualitative research because of its flexibility and capability to extract rich data. Site visits were also used to provide contextual information and enable us to observe snapshots of ongoing execution and communication among the contractor, client, consultancy, and subcontractors.

3.2.1 Interviews

Interviews were performed between February 2019 to April 2019 using a semi-structured guide. A semi-structured approach was chosen to get in-depth answers but likewise, to maintain control of the interview's direction. As Adams (2015) explains, semi-structured interviews are appropriate when one wants to ask open-ended questions to encourage spontaneous thoughts from individuals as well as the opportunity for asking follow-up questions about how or why. This process

was defined by Crowe et al. (2011) as useful when in-depth knowledge on particular issues is required. Also, this approach enabled us to ask probing questions in order to identify underlying reasons and problems which might otherwise have been overlooked. For some interviews, an open structure was more suitable due to the exploratory nature of those interviews. Here we asked the respondents to draw a map of their stakeholders to illustrate their network while also describing it verbally. In this way, it was easier for the interviewees to focus, giving them time to include as many details as possible of their networks. This also enabled us to summarize and synthesize the illustrations, see chapter 5.

The interview questions were developed in an iterative process throughout the whole period and were continuously refined according to the role of the respondent. To have a basis for comparison, the theme of the questions stayed the same while the set-up and follow-up questions were attuned to interviewee and situation. In the interview guide, see Appendix I, sample of the interview questions can be found. Interviews were not sent out in advance. The list of respondents is summarized in Table 3-1 and includes 12 respondents representing the consultant, contractor, and client.

Table 3-1: Summary of Interviews

Interviewee	**Role in the organization**	**Type**	**Duration**
A	Communicator	Explorative	1 hour
B	Communicator	Explorative	1 hour
C	Project manager	Project case	2 hours
D	Communicator	Project case	2 hours
E	Project coach	Explorative	1,5 hours
F	Project Manager	Project case	1,5 hours
G	Market director	Project case	1 hour
H	Project coach	Explorative	1,5 hours
I	Chief executive	Project case	1 hour
J	Site manager	Project case	1 hour
K	Contracting project manager	Project case	0,5 hour
H	Client	Project case	1 hour

The interviewees were selected for various reasons. First, the project communicators which were selected so as to gather overall knowledge of how the consultant company typically conducts projects regarding the interplay between communicators and managers. Secondly, the different members of the studied project were interviewed to gain an in-depth point of reference for the project from the main stakeholders. Thirdly, the project coaches at the consultancy company were selected because of their expertise regarding collaboration projects and therefore contributed to focus the perspective through exploratory interviews.

The interviews were held face-to-face to enable readings of body-language and expressions. The duration of interviews varied between 1 to 2 hours and were held mainly at an office of the consultant company. Some interviews were held on site to acquire a feel for the atmosphere on-site. This helped us better understand the relationships of stakeholders and examine the project execution process.

The questions started with a warming up to get to know each person more and their role. Then the topics focused mainly on stakeholders, communication, and collaboration. The list of questions is found in the appendix, but it is important to note that it was a living document that was adapted to each interview according to the role and function of the respondent. Notes were taken during the interviews and they were recorded. After each interviewee, the data was transcribed, and a summary was compiled to highlight the most relevant themes. Confidentiality and consent were also taken into consideration to keep the anonymity of the respondents and avoid identifying the company or the participants. Moreover, the participants contributed to the research voluntarily. ESRC Framework for Research Ethics were the ethics we referenced our research on.

3.2.2 Site Visits

Two site visits to the construction site were organized between March and April. The site visits started at 7:30 with a short discussion with the contractor who explained their tasks and their progress, followed by visits to the apartments to view the work performed by subcontractors in different stages and participate in inspections. The work stage in each apartment ranged from the initial steps of removing the old pipes to almost completion of installing furniture in certain apartments, these were handled by the project manager from our company.

Field notes included the contractor reporting what is happening on site, including the posting of a schedule of completed tasks on the apartments entrance door to

be signed by subcontractor employees. The observations were part of our research, but as identified by Gold (1958), we did not participate in the on-going process on-site.

3.2.3 Project meetings

Two meeting were also observed: a progress meeting and a construction meeting provided the grounds for further comprehension of the project mission and communicative environment. Field notes were taken, and a few questions were posed by us. The first meeting, the progress meeting, was held at the site office. Actors attending comprised the construction project manager, site manager, an external control official, and the project manager from the consultant company. During the meeting, the control official asked the participating project members for details concerning the project progress and performance.

The second meeting, the construction meeting, was held on the project site in the tenant-owned building. Present at the meeting were the project manager, commission manager, project communicator, and a junior project manager from the consultant company. Moreover, the CEO, project manager, and site manager from the contracting firm, as well as the two representatives from the client attended the meeting. This meeting was a good opportunity to study the whole project organization in communicative action. The meeting contributed with a better insight into the communicative environment and project performance from both structural and social perspectives. Moreover, the extent of collaboration and group behavior could be studied.

3.3 Data Analysis

This is an exploratory study that follows an iterative process for solving a complex problem in uncertain situations, which draws on the Design Thinking theory (Liedtka, 2015). Implementing a design thinking process on a stakeholder communication problem in construction projects gives us a method for analyzing the collected data and identifying "the problem under the problem". The design thinking process is made of five stages: empathize understanding the problem we're trying to solve; define the problem; ideate the problem; prototype the problem to identify the possible solutions; and test the outcome.

The collected data from the interviews were summarized and defined under different categories. The categories were: channels of communication; stakeholder network identification by each interviewee; communication barriers from each

respondent's point of view; stakeholder relationships; and how each respondent perceived their collaboration in the project. An overall picture was thus obtained from the site visits which gave a clearer perspective on the data. The inspections to the site visit were documented with photos and notes to record the feel of the project flow. Consequently, the analysis involved the interpretation of the gathered data through analytical and logical reasoning to determine communication flows, relationships, and plans.

The network analysis tool, which is a tool based on network theory to identify interdependencies between stakeholders and analyze the implications of these relations was used and comprised of four steps: firstly, to identify the network boundary and stakeholders. Secondly, mapping the stakeholder's interdependencies and relationships. Thirdly, analyze the network results. Lastly, develop stakeholder management strategies. This methodology is further explained in the theoretical communicative network perspective (Mok & Shen, 2016) and in chapter 2.

3.4 Limitations

The theoretical limitations of this thesis are focusing on network theory, which is relatively new for stakeholder management, and remains rather under-researched. Accordingly, this study should be seen an explorative, empirical testing of the construct. Secondly, referring to the findings chapter, the interviewees were limited to people from the same company or the stakeholders of a specified project, and the findings therefore cannot be readily generalized. Moreover, the cultural and language influence always play a role in data collection, as the majority of the interviews were held in Swedish to elicit as much information as possible since it was more comfortable to the respondents, this made it harder for the non-Swedish speaking author to quickly grasp the gist of the conversations. However, this limitation was also an affordance since the native author had to translate and explain, requiring a supplementary round of critical reflection concerning our interpretations.

4

Company and Case Study

The case studied is a construction project aimed at a pipe replacement for a large tenant owned association in the Gothenburg area, Sweden. We chose construction because of the dynamic and uncertain environment a construction project presents. The communication needs and evolving stakeholder relationships in such a project make it an interesting case to explore in terms of emergent stakeholder networks and management of communication during the project phases. Moreover, construction projects are a suitable context for studying stakeholder communication since the project environment includes several participating actors bringing different objectives and corporate cultures into the interaction. Thus, communication in construction projects features various unique challenges and communication networks so become convoluted and much prone to change (Dainty, Moore, & Murray, 2006).

4.1 Project management consultancy company

Project management means to handle planning, execution and controlling of project activities. Thus, it is an umbrella term for managing projects, programs and project activities (PMI Project Management Institute, 2010). A project can be performed according to several methodologies, but all are based on performing activities and tasks in an iterative process, divided into several rather distinct phases. A common and much-implemented methodology for carrying out a project is presented by PMBOK, illustrated in fig 4.1.

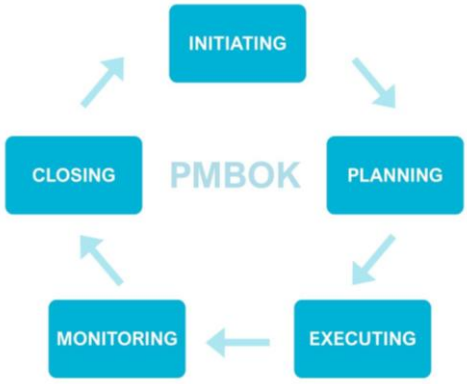

Figure 4-1: Project carrying methodology (PMI ,2010)

It starts in the initial phase where the project idea is formed and authorized, moving on to the second phase where the project scope is established together with the project plan, schedule, and budget. During this phase, the project is to be well defined and contribute to a well-understood plan for the project members. Then, execution starts with a project member group formed to manage the execution. Then, the project is controlled and monitored and is finalized by an inspection. Ultimately, the project is concluded if the inspection is satisfactory and all activities are completed (Kerzner, 2013). The aim of project management is consequently to achieve a well-performed project, meaning that the project is delivered on time, within budget and according to the required quality.

About the company

The company studied, or the point of view taken is a small to middle sized consultancy company within the construction industry in Sweden. The company conducts a variety of construction consultant services and administration of properties. The business is primarily aimed at the real estate market and focuses on commercial as well as residential constructions. The company was founded in the late 20th century and has 50 employees today - with a yearly turnover of approximately 51M SEK.

4.2 Project case

The studied case is an ongoing pipe replacement and bathroom renovation project in the suburban area of Gothenburg, led by a project manager of the consultancy company. The project comprises the renovation of approximately 300 condominiums of a tenant-owners' association of three properties. It is a fixed price contract with design and builds as the delivery method, according to the Swedish standard ABT 06 (information gathered from the administrative regulations in the project specifications). The project was initiated in early 2018, and construction started in August 2018, and initially expected to proceed until 2020. The project has been affected by several issues regarding the time-plan, which has delayed it significantly and postponed the project termination by at least a year. Above all, the discovery of considerable amounts of asbestos in the wall and through several layers in the floor has been the major contributor to this delay. Currently, the project is in the second stage of construction within the execution phase, with a recent inspection approval for the first stage in the project.

Through the conducted interviews and observations made on site, we obtained a retrospective narrative of project events from initiation to date. The project has had a stormy history so far. Initially, it seemed to progress well, especially in the

planning and design phases, but soon escalated into conflicts and heavy delays during the construction phase. This continued until the point where several project members had to be exchanged, namely the project manager from the consultancy company as well as the site manager and construction project manager representing the contractor. It should be noted that the project communicator from the consultancy company was the only member that remained in the project organization. Also, client authority has changed throughout the project because of the entry of an additional, and self-appointed, representative from the tenant owned association board.

Project Phases

The case study aimed at examining stakeholder communication in the pipe replacement construction project. The project and the examined sequences for this study are illustrated in fig 4.2 and can be sorted into two phases: first, the Planning phase followed by the second phase, Construction. The Construction phase is divided into two parts, construction 2:1 and construction 2:2, because of the mentioned project organization exchange leading to a construction re-start.

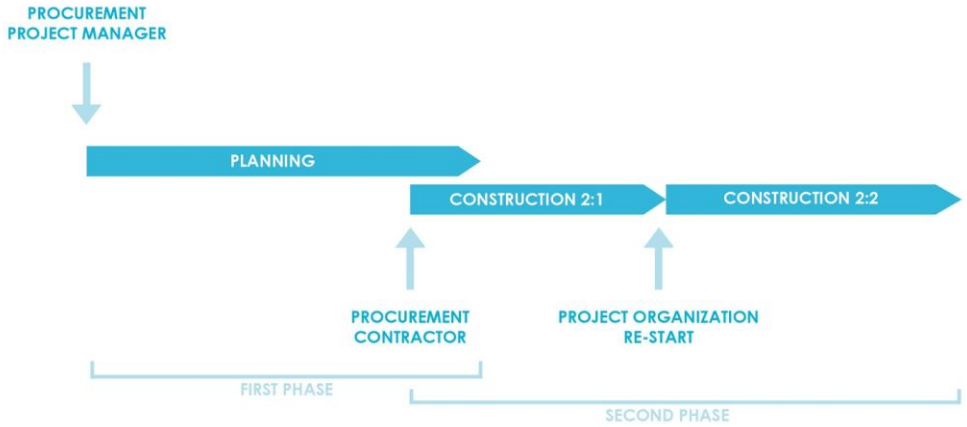

Figure 4-2: The studied phases in the project. Author's own copyright

4.3 Project case organisation

The project organization of the studied construction project is illustrated in fig 4.3. The project management consultancy company had three people working in the project: project manager, project communicator, and commission manager. The other stakeholders in the project organization consist of the client, contractor, subcontractors, inspector, and a control official.

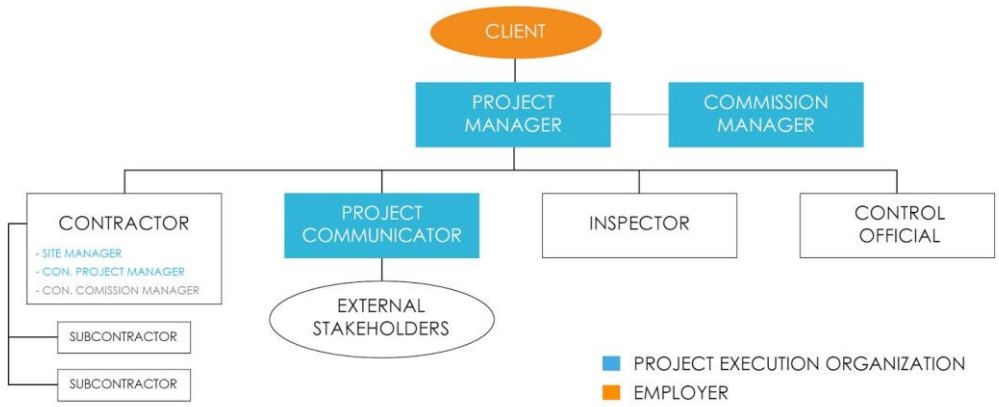

Figure 4-3: Overall Project Organization. Author's own copyright

Consultancy company – project management

The project manager of the consultancy company is responsible for the project plan which comprises the planning of time, budget, resources, and scope. The project manager is involved from the start until the end of the project. Moreover, the project manager represents the client's interests in the project organization and manages all the stakeholders involved in the project. The project manager is thus a central figure and leads the project. The commission manager is utmost responsibility for the order agreement made with the client and to, initially, plan the project together with the project manager. After that, the project manager takes over the project and the commission-manager usually does not actively participate in the project, if not specifically required.

This project also has a project communicator representing the consultancy company. The purpose of this service is to relieve the project organization, namely the project manager and the contractor of the communication management of legitimate external stakeholders so they are free to focus on the project execution. Furthermore, this service attempts to make sure that a fair process and a fair outcome of stakeholder engagement is implemented and at the same time an opportunity for collecting and extracting more input, like opinions and suggestions, which might be useful information to the project. The project manager and communicator work tightly together because the communicator must be updated about all the project events and activities to be able to communicate the correct information to stakeholders. Consequently, the project communicator is a linkage between the project and the external stakeholders.

Client - employer

The client in the studied case is the board of the tenant owned association the properties of which are under renovation. Specifically, the client's representative is a chosen member by the board who represents the association during meetings and acts as a contact person. The client finances the project and procures the project manager to lead the project, thus, to represent their interests in the project group organization, illustrated in fig 4.4. Together with the project manager, the client is responsible for the procurement of a contractor according to the chosen contract form.

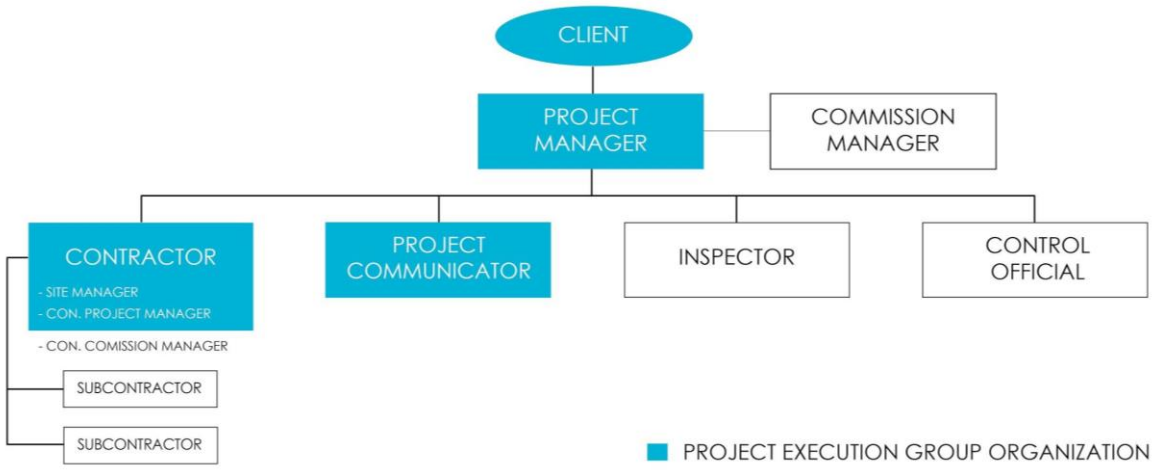

Figure 4 4: Project Organization showing the execution group organization. Author's own copyright

Contractor - construction management

In this project, the contractor representatives include a site manager, a construction project manager, and a construction-commission manager. The site manager leads the operations on the construction site while the construction-project manager has more administrative responsibilities. Moreover, the construction-project manager also works as a support to the site manager on the project site. The construction-commission manager is the utmost responsibility for the project and the work environment at the construction, and similarly to the consultancy-commission manager, does not participate in the management of the project. In this case, the construction-commission manager is represented by the chief executive officer of the contracting firm.

Subcontractors

The subcontractors are procured exclusively by the contractor since it is a design and build contract. The subcontractors execute the construction on site, monitored by the site manager, and comprise firms providing e.g. demolition, sanitation, construction, electricity, heating, and water pipe systems.

Inspector and control official

In this project, the inspector and control official represent different firms external to the project. Although the consultant-management company offers these services, these were not procured for this project. This, because the client requested the involvement of a particular inspector, and also the consultancy company did not have the resources to offer the control service at the time. The inspector and control officials ensure project quality through inspections respectively control meetings. Control meetings are done continuously throughout the execution phase while inspections of construction, electricity, heating and so on are done the end of a construction stage and at the finalization of the project.

4.3.1 Project organization re-start

As fig 4.2 illustrates, actors in the project organization were replaced during the execution phase due to poor project performance, thus dividing the phase into two separate parts of the construction phase. Consequently, this project features two project managers: project manager 1 and project manager 2, where project manager 2 replaced project manager 1 initiating the re-start and second part, construction 2:2. Also, the site manager and construction-project manager have likewise been represented by two respectively people. During construction 2:2, site manager 2 and construction-project manager 2 were hence appointed to lead the construction.

5

Findings

In this chapter, we show how communication was carried out between different stakeholders. All data is based on findings from interviews, observations, informal dialogues with project members and the project specifications. The chapter is divided into two parts, where the first part treats findings concerning the network organization structure, and the second part presents identified factors which seem to hinder communication, i.e. the communication barriers identified from the interviews conducted. The findings in this chapter aim to mainly answer research question 1: Who are the main stakeholders and how are they managed? Both parts contribute to the understanding of the identified stakeholders and, together, these parts provide a picture of stakeholder management and communication in the construction project studied. It is important to note that other factors may also influence the project performance, but our main focus is managing stakeholder communication.

5.1 Communication network study

In this part of the chapter, we present our interpretation of the extent of stakeholder engagement and channels for communication drawing on a communicative network perspective. This part, therefore, focuses on findings regarding the project organization structure, seen as a network for communication, and how the communication channels likewise are established.

The project organization can be viewed as a network of relationships composing both formal and informal communication channels and relationships. The communication and relationships regarding the control official, inspector, and external stakeholders such as municipalities, the government, media are not considered in this study. The studied relationships in the project network have emerged throughout the project lifetime. Therefore, each phase, as illustrated by fig.4.2, demonstrates their own development of the communication network.

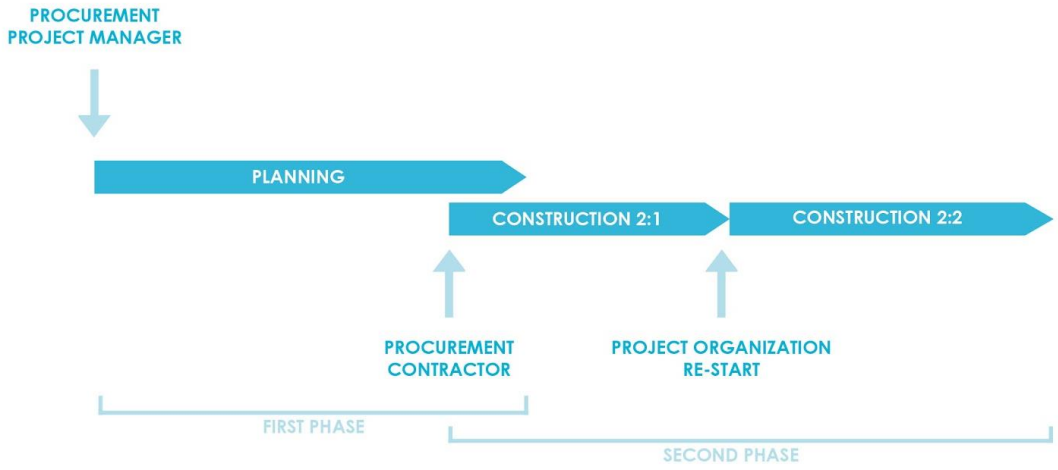

Figure 4-5: The studied phases in the project. Author's own copyright

5.1.1 First phase - Planning

The planning phase lasted from February 2018 until the middle of August 2018. This phase included the procurement of a project management service as well as the constitution of project scope and design. After the client accepted the tender, the project was organized by the commission-manager and the appointed project manager 1 of the consultancy company. The emerging communication in this phase, as illustrated below in fig.5.1, varied considerably between the project stakeholders, both in intensity and by the means which were used to communicate. The significance of the communication channels established, and the way communication was managed in this phase, is consequential for understanding the communication development of following project phases.

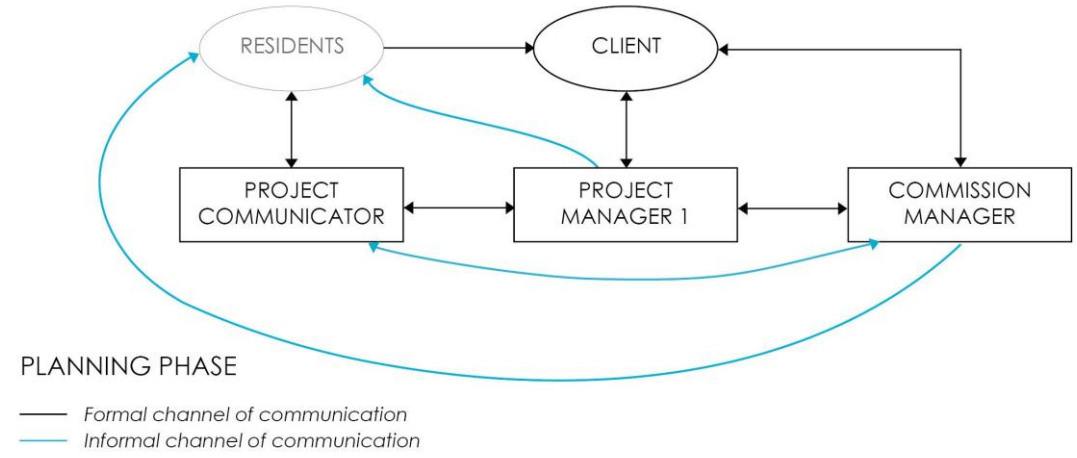

Figure 5-1: Communication Network. Author's own copyright.

In the Planning phase, stakeholder communication was carried out much according to the plan but mixed with personal and unmediated contacts. Communication between stakeholders was thus varied, using both formal and informal means to confide information. Especially, the most frequent communication was employed between the consultancy company actors. Accordingly, between the project manager 1, commission manager and project communicator which are illustrated as square shapes in fig.5.1.

A. Project Organization

The commission manager of the consultancy company had the utmost responsibility for the project and was the actor who signed the contract with the client. The initial communication in this phase was between the client and commission manager, with the purpose to arrange the contract and determine the project order. The formality of this communication is depicted in the network illustration but does not describe the frequency of contact which evolved during this phase. The commission manager explains that this communication was carried out by meetings, telephone, and email and that after the project order was confirmed the commission-manager transferred the responsibility of the project to project manager 1, and so also the main communication with the client, reducing communication between the client and commission manager. Project manager 1 was appointed by the consultancy company to operate the project by overseeing the progress of the project, from the planning phase to the finalization of the project.

The client is the customer and thus finances the project, as well as making the ultimate decisions, and is therefore described as a significant stakeholder by the project manager 1. The project manager 1 clarified that communication with the client concerned the planning progress and consisted of discussions and consultations about the design and scope. This communication occurred through meetings, email, and telephone conversations. Approximately, meetings occurred every third week while telephone and email conversations followed a weekly pattern. However, the project manager interposes that these conversations were not always documented. Ultimately, the client was seemingly content with the project manager 1's work at this phase, which project manager 1 commented on as follows:

"We ask for feedback on how well we perform each phase from the customer. All follow-up from the customer in the planning phase was very positive. Full grades.".

B. Communication Networks

In this phase, two types of communication were identified: internal communication between the consultancy company and external communication between the external stakeholders.

Internal Communication at the Consultancy Company

Three of the actors in this phase represent the consultancy company, therefore communicative exchanges were mainly carried out in project meetings and informal conversations at the consultancy company office. The project manager 1 explained that all information about the project proceedings, and input from the client, went through him and from there was advanced to the commission-manager respectively the project communicator, as is depicted in the communication network illustration. However, the commission-manager indicated that project manager 1 wanted experienced support and therefore additional daily communication between the project manager 1 and commission manager was assimilated, aside from formal setup of meetings. The commission manager explained his involvement by stating:

"I was involved mainly during the planning phase, when the first project manager was in charge, to aid him in his work. Although, he was the driving force and I was the supportive feature."

The communication formality depicted in the illustration of the communicative network was consequently supported by private and daily conversations. Likewise, communication with the project communicator and project manager 1 was formally established as illustrated in the communication network. This communication entailed the sharing of information in two directions, where the project manager conveyed information about the project proceedings and the communicator advanced inputs regarding questions and opinions from the residents. The communicator also mentioned having weekly meetings with the project manager but that spontaneous conversations about project affairs occurred almost every day, likewise also with the commission manager.

External Communication with Stakeholders

With the project being a pipe replacement renovation, thus affected the residents of the renovated construction considerably and the client deemed it necessary to hire a project communicator to manage the contact with these external stakeholders. The project communicator service was procured simultaneously as the project management service, but the communicator did not enter the project until the very end of this phase. The communicator explained this was because

communication with residents was not considered necessary until that point when construction was soon to start. The communicator further pointed out that she initially communicated with the residents through information meetings, about what a pipe replacement would entail for the people living there, as follows:

"I did not participate during almost the whole planning phase but came in before construction was to start. We had information meetings with the residents, where we went through what would happen."

The communicator further state that she established contact with the residents by the means of telephone or email, encouraging the residents to come to her with their questions. Moreover, the project manager 1 and the commission-manager both confirmed attendance at the information meetings together with the project communicator.

5.1.2 Second phase - Construction step 1

The second phase, construction step 1, went on for 4 months, between mid-August 2018 until December 2018. During this phase, the procurement of a contracting service preceded the start of construction and hence the project execution. Thus, stakeholder communication with the contractor and subcontractors were initiated. This phase is typically critical for the establishment of formal communication channels between the project organization members, but also the implementation of plans and designs. In this phase, the development of information exchange between the project members is illustrated, and will later be explained, in fig 5.2.

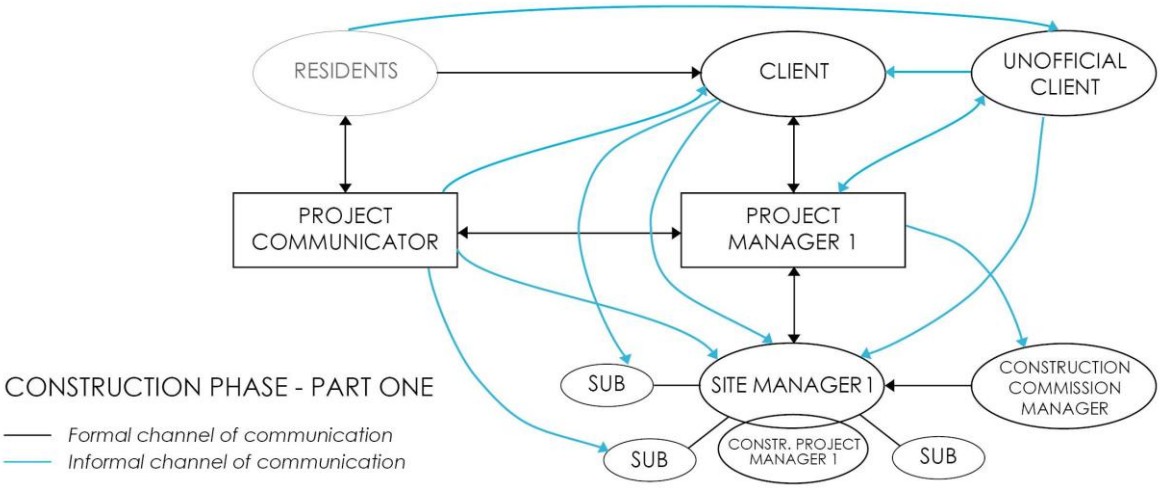

Figure 5-2: Communication Network. Author's own copyright.

A. Project Organization

The procurement of the contractor was accomplished by the client, project manager 1 and commission manager. Three tenders were received, whereas one was considerably higher in price than the two others, according to the commission manager. Project manager 1 explained that between the two with similar offers, one was chosen based on a good feeling and positive internal references.

Starting Construction

Construction started in mid-August 2018, directly after the procurement of the contractor. The project communicator noted that this gave little time for the contractor to procure and arrange subcontractors as well as producing the necessary designs and documents. Both the project communicator and the project manager brought up the abrupt start of the construction, which was due to the client's eagerness to start construction. The communicator mentioned:

"The client wanted everything to go very fast, I think it was our first mistake, but we were excited to get started. Construction work was planned immediately after the holiday in August, which meant we were in a hurry to reach out to the residents. It was a slap."

As the figure illustrates, the communication during this phase was more intense, more varied, and encompassed more actors than the previous phase. The contractor contributed with three new major actors in the communicative network; site manager 1, construction-project manager 1 and the construction-commission manager. Also, the illustrated lines of formal communication between the project manager 1 and the contractor actors were initially described by the project manager to encompass weekly construction meetings and spontaneous telephone calls. The communication concerned project progress, schedule, and allocation of tasks so that the project manager 1 could regulate and direct the project according to this information.

B. Communication Networks

The planned communication networks in this phase were used ineffectively due to some of the responsible actor's absence and working without full construction documents, that led to, subsequently, use of informal communication channels to cover the missing information.

Abandoning communication channels

According to project manager 1 and the project communicator, it became obvious as the weeks progressed that site manager 1 was only present on the site when

there were meetings scheduled. Likewise, construction-project manager 1 was not on site during the construction, according to statements made by project manager 1 and the client. Moreover, the project manager notes that construction documents had not been finalized and therefore not delivered, so the demolishing phase started without plans other than the initial specification documents. The following development of project occurrences is best explained by project manager 1:

"After some construction meetings, maybe after construction meeting nr 3, I started to understand that everything was not right. I could have 6 points in the construction meeting protocol which the site manager or the construction-project manager was to be responsible for and to return information about. They never did. Finally, there had been 4-5 building meetings without any response, although they promised each week to answer these questions 'to the next meeting'. I finally lost confidence."

The project manager further explained that the problems occurring at the site was due to unstructured and unsupervised work together with the identification of considerable amounts of asbestos, which continually generated project delays. However, the project communicator mentioned that no one in the project organization, except for the contractor actors, knew the extent of the delay during this whole phase by commenting:

"Often, the site manager did not even respond by phone or email. The communication could stop completely for a week. Moreover, I could not answer questions from the residents or others in the project organization. We tried to address this with the contractor agents, but instead, they closed us out and did not respond."

The established communication line between contractor actors and the project manager illustrated in the communication network was consequently diminished. The project communicator continued this by stating that the weekly letters she sent to the residents, explaining about the project activities planned for the coming week, was answered by the residents pointing out that her information was faulty:

"They could see that the project was delayed. They no longer trusted that they could come to me for answers and they did not trust us to keep track of the project. It created anxiety."

Need of Informal communication

The communication network illustration shows a significant development of informal communication initiatives. The communicator described this as a reaction to the lack of information flowing from the site manager 1 to project

manager 1, depicted as formal in the figure, which forced the communicator to take direct contact with subcontractors and site manager 1 in order to receive consistent information to convey to the residents. She also comments on this as follows:

"We sometimes have to break down the contact paths. If I contact the project manager 1, he must, in turn, contact the site manager 1 and then on to the subcontractor, which can be a long way for the question and the information to go. If it was a critical issue, or if time was short, then I tried to shorten this contact path in this project to avoid delayed responses. There is a risk that the info will change if there are too many "stops" on the way."

Moreover, project manager 1 expressed that it took too long before he realized the necessity of bringing in the contractor CEO and the construction-commission manager into the project organization to deal with the absence of site leadership and the project delay. This contact is illustrated in the communication network as an informal channel between project manager 1 and these two actors. The project manager explains that he circumvented official communication channels out of need. The illustration also shows the communication emerging between the client and other project organization members. The client explained that the continued project delay generated worry and frustration in the tenant owned association board, which he represented as the client in the project, and that this triggered another actor in the association board into action. The project manager described the events following:

"The longer the project went, the more another unofficial client of the tenant owned association board began to fold in. Increasingly, the client lost his mandate to this unofficial client. So, the dissatisfaction with the project performance engendered in a lot of communication received from the 'backdoor' from this actor."

The communication network illustrated in 5.2 describes the informal "backdoor" communication paths which, according to project manager 1, the unofficial client created by spontaneous conversations, daily telephone calls and personal emails, but also by turning up at the construction meetings. Project manager 1 commented that communication with this actor mainly concerned the lack of progress at the project site, as well as questions and qualms. Also, both the communicator and project manager 1 mentioned the unclear client environment, creating confusion regarding the location of authority, which the entry of the unofficial client entailed. Consequently, the project organization members did not know which client to listen and report to, according to the project communicator.

Communication Barriers – Second Phase, part 1

The project communicator further described the project situation in the second phase and part 1, construction 2:1, as confused and distinguished by irritation due to the lack of information received from the contractor party. The project manager 1 contemplated about the unwillingness to communicate if feelings are in the way:

"If you at an early stage feel that there is a person you do not want to communicate with, whom you must communicate with, but you likewise do not want to communicate with - this creates a barrier. Feelings are important. I am to communicate not only information but also my feelings, my will, and my expectations. In order to achieve an effect with my communication, all of these must be conveyed."

Moreover, the project manager and the client likewise explained that any attempts of communication with the contractor members were unsuccessful which led to internal discussions between the consultancy company actors and the two clients, the official and the unofficial, of whether they could trust the contractor. The project communicator commented on the behavior of the contractor actors accordingly:

"We know today that they [the contractor] had another project that the site manager 1 worked with in parallel with ours. It took up a lot of time and unfortunately it was ours that suffered. Then, fear of conflicts became a barrier. Like, when people do not dare to say what they think or tell if they are late, the time-plan is delayed. If a person promises to do something just to avoid being chastised, this creates problems which affect the project. The site manager 1 was afraid to tell us that the project was delayed."

Moreover, the project manager further explained that the entry of the construction-commission manager in the project operation did no increase the sharing of information from the contractor party. He then concluded by describing the project communication environment as confusing, admitting that all communication tended to be foremost oral and that confirmation and follow-up in writing happened rarely. The intricacy of this oral communication can be perceived through the illustrated communication network figure, showing the entirety of the various lines of informal contact marking the communication in this phase.

The project communicator concludes that at the end of this stage, after 4 months of construction, the project was approximately delayed by 3 months. The identified barriers of communication in this phase, construction 2:1, can be summarized to involve structural issues concerning blocked communication channels and the impetuous constitution of informal channels, but also

comprehend several social barriers such as dishonesty, misunderstanding and stress.

5.1.3 Second phase - Construction Step 2: Re-start

The second construction part and step 2, i.e. construction 2:2, started in December 2018 and is still ongoing. During this re-start step, considerable changes to the project group organization were made and measures are taken to catch up on the construction time-schedule. Hence, stakeholder communication and management of the project restarted. Communication channels were re-established, the project plan modified, and the schedule re-evaluated. This phase has been even more critical regarding the communication structure since most actors in the project organization are new to a project culture that had already been formed. In this step, we observed extensive use of spontaneous and unofficial communication, as illustrated in fig 5.3. Mainly, from stakeholders outside the project group organization, but also sample quantities of impersonal and official communication between the project organization members.

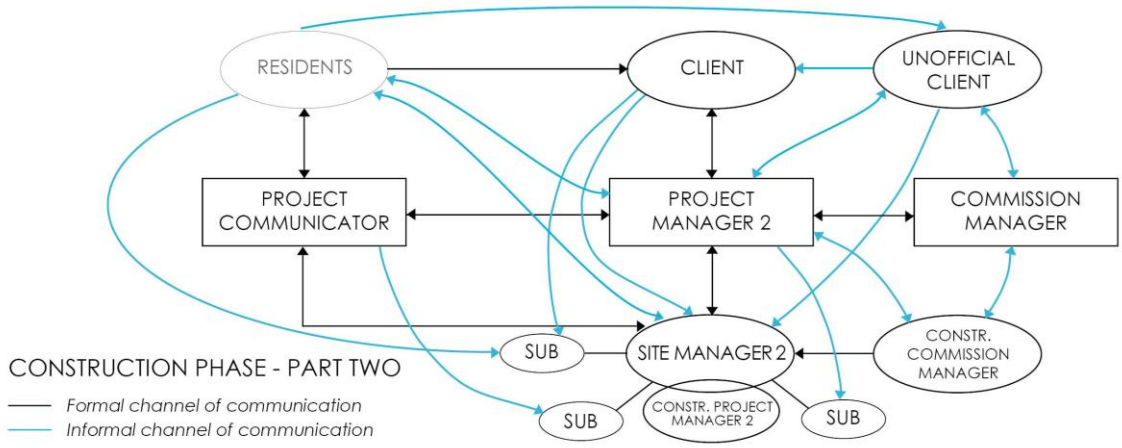

Figure 5-3: Network Communication. Author's own copyright.

As this step proceeded, we observed additional delays to the project time-plan because of additional asbestos found in the layers of the floor but also because of incorrectly performed work in several apartments. Currently, these encumbrances are estimated to prolong the project by a total of one and a half years, according to notifications made at construction meetings. The new project manager 2 deliberated on the past events of the project accordingly:

"In the end, it's all about distrust. If information is not conveyed or forwarded, it damages the trust in the project. To promise something without implementing what you promised you lose confidence in that person. It is always about feedback."

A. Project Organization: Step 2

After the project had reached a very critical level, the only option for the consultancy company was to replace the whole team working on the project except for the communication manager.

Replaced Members

Because of the events leading up to this critical point, the client explained that he had lost trust in the project manager and contractor members and demanded drastic changes to the project organization in order to save the project from further disaster. According to several interviewees, the physical absence and poor leadership site manager and construction-project manager were the main reasons for replacing these actors. The consultancy-commission manager indicated that the reason for the replacement of project manager was, seemingly, a need of back-up, hence a more experienced project manager. The project communicator commented on the new project organization as follows:

"Sometimes everything stagnates if a person refuses to hear what you are trying to convey. Then some people in the organization have to be replaced. The exchange led to more engagement and communication became more structured when project manager 2 came in. She came in with a lot of authority and experience, so it became a completely new atmosphere and new commitment. When the site manager 2 and the CEO [construction-commission manager] from the contractor also started to participate, it was a new group dynamic."

Project manager 2 explained that she initially had to be very specific with her expectations and make firm demands. Especially, she commented on the absence of construction documents and, to all project organization members, the importance of written documentation for decisions made. The project communicator further commented that the project manager 2 managed to gain the construction documents after only a few weeks, after months of an attempt by the previous project organization.

B. Communication Network

After changing the teams in the project and re-starting the construction 2:2, the communication structure had to be changed to fit the new situation. Unfortunately, due to some barriers from the old and current situations, the higher use of informal communication increased again.

Re-establishing the communication structure

Project manager 2 explained that she changed the communication structure by referring to the official contact lines initially established, illustrated as the formal communication channels in fig 5.3. The figure shows the project manager as a central actor for communication, where all information flows through this actor. She further commented on the initial experience of the project as follows:

"I noticed that confidence was very low, no one trusted each other. I realized we had to work from there, we had to establish what was decided from the beginning and what it is we were going to do to fix the problems. So, the barrier here was the distrust. If you lose confidence in someone, it is also affected by your expectation. If you have high expectations, they are difficult to live up to."

Project manager 2 also referred to the environment of distrust which had grown during the project so far. The project manager 2 maintained that she had to start from the beginning and re-establish all communication lines, removing the personal communication paths established during phase 2, part 1. As the communication network shows, project manager 2 communicated formally with the client, communicator, commission manager of the consultancy company, site manager 2 and construction-project manager 2. Project manager 2 further stated that communication with the client occurred through weekly construction meetings, daily telephone calls to inform about problems, and through email to document decisions taken. According to site manager 2, communication between project manager 2 and site manager 2 was carried out through weekly construction meetings, weekly checks, and internal inspection meetings on site, telephone calls concerning emerging issues with the project, and emails to confirm decisions taken. The communication with the construction-project manager 2 followed the same set-up but with less telephone communication and more emails instead.

During this step of phase 2, site manager 2 entered the project with the construction already having started. Site manager 2 took responsibility the communication with the subcontractors, a communication channel which previously had been close to non-existent:

"There was poor control at the beginning of this project. The site manager was never here before. No one was aware of what was done and what happened. If the site manager is not in place, the communication to the subcontractors fails."

Site manager 2 further explained that communication with the subcontractors during this step was ensured through weekly subcontractor meetings, daily morning meetings, spontaneous conversations, and "pop-ins" by the various

subcontractors at the site office, where site manager 2 resides. He further elaborated that the meetings concerned planning and progress of each day, and week, and the informal meetings treated emerging issues and sudden changes in planned procedures. Although the formality of communication depicted between subcontractor and contractor actors seems rigid in the communication network figure, the site manager explained that many improvised verbal interchanges based on the need for instant decisions does occur beyond the formal meetings mentioned.

Constrained communication path with unofficial client

Additionally, project manager 2 explained that the unofficial client was banned from the project operations and from meetings, but that contact was maintained with this actor as the communication network illustrates with the informal line of contact. According to project manager 2, this was done as an attempt to reduce the informal communication between this actor and the contractor members without unduly antagonizing the individual. Site manager 2 emphasized the importance of maintaining a structured and formally established contact net:

"I want all communication with the client and unofficial client to pass through the project manager because then I know it occurs in a formal way and, moreover, are confirmed in writing."

Project manager 2 clarified that communication with the unofficial client now occurred mainly over the telephone to maintain good relations and create a dialogue with this actor and to obtain additional informal feedback.

Informal communication - Construction step 2

At first, the newly established lines of communication in the start of step 2 seemed to replace the previous over-extensive use of informal communication; however, as fig 5.3 clearly indicates, we observed a considerable amount informal communication as this step proceeded.

Although communication between contractor actors and the client as well as the unofficial client was initially curtailed in this step and instead directed through project manager 2 or in group settings at meetings, there seemed to be a large number of spontaneous telephone calls, as illustrated in Fig 5:3. According to site manager 2, these telephone calls have increased to several each day, even each hour, concerning a number of trivial as well as critical day-to-day issues and complaints.

Furthermore, the communication path illustrated in fig 5.3 between site manager 2 and the residents was also significant. Site manager 2 said that communication with the residents is unavoidable with the proximity of the site office to the construction site and, hence, the homes of the residents. Such communication occurs through spontaneous pop-ins at the office as well as conversations all over the site, and concerns questions about project delays, requests, and new furnishing options. The site manager further explained that this communication is seldom documented on site nor is the time it takes registered. The project communicator also commented on the communication between the residents and the site manager as follows:

"When the work does not go according to the plan, the residents get angry and start asking the contractor and the subcontractor what happens. Then they cannot do their job because they have to answer questions - in place. This, in turn, causes them to lose working hours which can ultimately delay the project further."

Because of the increased informal communication occurring on site between residents and site manager, communication between site manager and project communicator has also increased since the informal talks on site have to be relayed and documented by the project communicator, see Fig 5.3. This communication is carried out through daily telephone calls, occasional emails, and at the weekly construction meetings. The communicator and site manager 2 explained that communication between residents and the communicator still occurs by telephone and email while communication with the site manager is face-to-face. The project delays are the main contributor to the increased contact time with the resident stakeholders. The client also confirmed this increase in contact. Residents communicate with the client, and the unofficial client, to a considerable extent in both frequency and intensity due to the discontent over the poor project progress. The client explained:

"I understand the resident! we started construction at the end of summer and after half a year we still are not finished in the first apartments. I am responsible for the project, so I get the blame. I feel panicked and inadequate. I have not been able to explain the full reasons for the delays to the residents because I must defend the project as I am responsible. Also, we do not want more rumors and backtalk circling in the housing society."

Finally, recent observations made also indicate the increased involvement of the commission-manager which is demonstrated in the figure. The commission manager has attended construction meetings and seemingly participated more to support the project manager 2, according to our observations. Also, the

construction-commission manager has been mandated to overleap the formal contact path and hence communicate directly with the project manager 2 and commission manager instead. Consequently, the communication network shows us that more actors are now engaged in the project than ever before, and communication is flowing in all directions and between almost every participant.

Communication Barriers - Construction step 2

Communication barriers in construction 2:2 were the lack of experience of some of the subcontractors. In addition to the stress and distrust that was transferred from the previous construction step. The stress increased when work is delayed, and the residents' complaints and uncertainties also increase.

On the other hand, the long communication channel was not sufficient for the client who was anxious about all the mistakes occurring in the project. The client was dissatisfied and spread anxiety through his communication channels to the contractor and subcontractors. This led to consuming even more time spent on reassuring the client on a daily basis and keeping the residents updated as she describes:

"The first thing I met when I come in the morning are angry emails, not just to me but to the whole group. So, the next thing I had to do is to ask the client not to send emails to the whole group. The group takes it personal and affects them, because you don't want to do what he says because he's angry, you get emotionally affected. So, I changed that so he cannot go and contact them, so I'm his canal. Then I started my mornings by giving him a call instead of reading his emails, so on my way to work I called him, and on my way back I from work I called him. So, he got contact from me every day, two times a day instead of once a week usually".

5.2. Factors preventing effective communication

In this part of the chapter, we present the main findings concerning our interpretations of the communication barriers of this project. This part, therefore, provides an account of all the various communication barriers identified and attempts to increase understanding of the project stakeholder communication.

When asking the interviewees about the possible hindrances for effective communication, a variation of characteristics, motives, and barriers was mentioned. Often, many of the "barriers" mentioned referred to the causes and effects of ineffective communication rather than actual barriers in themselves. That is, many of the presumed barriers encompass aspects and behaviors which lead to a barrier in communication. Or, interviewees rather mention factors which

comprise effects of communicative barriers, the outcome of failed communication. According to the findings, failed communication can be described as a process. This process contains several steps and starts with causes and ends with effects. For example, one interviewee described diversified objectives to be the cause of distrust and how disinclination to communicate causes a gap in understanding:

"If I do not know if your goals are aligned with mine, this will create distrust and then the communication will suffer because I might not even understand what it is you want to tell me. It is about the will to communicate."

The interviewee addresses the consequences of such a process, where certain choices and behaviors ultimately lead to failed communication. Consequently, it becomes significant to distinguish between causes of barriers and the effects of barriers. Results from our analysis of the data are presented in table 5.1, and are sorted into three categories: causes, barriers, and effects of communication. The causes are best explained as the creators of certain barriers. That is the events or behaviors that cause barriers to arise. Then, the barriers represent blockages, or obstacles, for effective communication. The barriers are sorted into several themes that summarize the different aspects of the barriers we perceived. However, not all barriers must have one of the mentioned causes. For example, structural barriers are usually due to established organizational structures. The "failure" of communication can be characterized by various effects. According to the interviewees, frequent outcomes of failed communication were linked to unclarity and confusion.

Table 5-1: Identified Communication Barriers based on interviewees. Author's own copyright.

Causes	**Barriers**	**Effects**
Incorrect execution	**Structural**	**Gap**
Broken promises	Hierarchy	Misunderstanding
Neglect of tasks	Long communication channels	Confusion
Lack of experience	"Whispering game" syndrome	Unclarity
	Unstructured	
	Information overload	
	Semantics	

Diversified objectives	**Social**	
Hidden agendas	Spite	
Lack of care	Dishonesty	
Different goals	Disinclination	
	Distrust	
	Pride	
	Fear of conflicts	
	Stress	
	Anxiety	

Often, barriers do not show up as a single barrier; they are usually a group of causes, barriers, and effects. The situations described illustrates an iterative process of ineffective communication due to several aspects, jumping from a cause to an effect leading to a barrier which in turn engender another cause and so on until the communication fails.

5.3. Synthesis of results

The findings suggest that several barriers are formed during different stages, resulting from formal and informal communications in the stakeholder communication network. As the project had three main stages, the studied phases, it is important to mention which phase had critical consequences on the project flow and when the barriers did arise.

The findings show that extensive use of both formal and informal communication was implemented during the project to manage stakeholder communication. Furthermore, the findings indicate that the communication and relationships between the stakeholders evolved over the phases examined. The findings also demonstrate that communication can fail because of a variety of reasons originating from a cause, leading to a barrier of communication which, consequently, have an effect on the communication. Failed communication can therefore be perceived as an iterative process, where an effect can in turn generate a new cause or barrier. Drawing from the results of the communication study, barriers identified, and balanced with the project events - a synthesis of the project communication during all phases can be made.

First Phase

In the Planning phase, stakeholder communication was carried out much according to the established structure but balanced with personal and unmediated contact. Communication between stakeholders was varied, using both formal and informal means to convey information. Especially, informal communication was employed between the consultancy company actors, but most significantly between the project organization and the residents of the project structure. The communication barriers in the planning phase can be considered negligible, although the forthcoming emergence of structural as well as social barriers arose from the communication practices established within this phase.

Second phase - step 1

In the second phase and first step, Construction 2:1, stakeholder communication increased considerably because of the additional actors involved, but also in frequency between each line of communication, due to the eventful nature of construction work. Later during this phase, a decreased intensity of communication between the contractor actors and the remaining project organization was noted. This generated in an increase of informal communication as an attempt to circumvent this obstacle. Consequently, informal communication eventually dominated the exchange of information in the project.

A distinct process of failed communication can be identified in this phase, where diversified objectives in the project organization led to dishonesty and disinclination to communicate, led to misunderstandings. This in turn led to broken promises which created anxiety and stress, ultimately generating more misunderstandings, anger and distrust in the project organization. The object of this anger reacted by stopping to communicate, while the other involved actors reacted by an overload of information exchange between them, creating unclarity and confusion.

Second phase - step 2

In the second step, Construction 2:2, stakeholder communication was substantial both in intensity and extent. New establishments of formal contact were initiated, and communication became more structured and controlled, but only at the initial stage of the re-start. Consequently, the informal contact routes were initially constrained in this step, but eventually increased in tandem with seemingly continued poor project performance. Impulsive and personal communication further increased, both within in the project organization but also between other stakeholders and actors in the project organization.

The process of failed communication can be perceived to take another dimension in this step. Moreover, it was noted that pragmatic and emotional history of the past phase still affected the communication. Observations suggest that an environment of hidden agendas and inadequate performance of tasks prevailed due to the previous distrust barrier. The seemingly continued inadequate execution further generated honesty blockages, like the fear of conflicts. Moreover, this engendered additional unclarity and misunderstandings between the project organization members, again evolving into an environment characterized by dishonesty and distrust. Ultimately, the reaction became an overload of information exchange and billowing of informal.

6

Discussion

In this chapter, we compare the literature in the theoretical framework to the findings in order to evaluate the stakeholder communication in the studied case. Here, stakeholder communication is discussed from a barrier perspective. Therefore, the discussion is divided into two parts reflecting the same concern, but perceived from two different dimensions, and including the two themes of communicative barriers identified in the study: structural and social barriers. The first part considers stakeholder communication as a structural barrier and concerns organizational structure and implications of communication channels. The second focuses on the social barriers of stakeholder communication, including the significance of trust-building relationships. The focal point for the two dimensions is to answer Research Question 2: What are the communication barriers and how can they be overcome? Together, the two dimensions provide an appreciation of how stakeholder communication was managed in the case studied.

6.1 Structural barriers dimension

The communicative perspective on stakeholder management states that individuals and entities constantly change, making them hard to classify, in the dynamic environment of a project (Enright, McElrath, & and Taylor, 2016). This part of the discussion aims to highlight the findings regarding the dimension of the technical barrier, based on the communication network structure and its development through the studied phases. The results of this study show the technical barriers identified as comprising long communication channels, an overload of information and the hierarchical structure of the communication network. Thus, the implications of the stakeholder communication viewed from this dimension manifest as three technical issues that explain the emerging communication network structure: long message chain and numerous boundaries; abandonment of formal communication channels; and entanglement and overflow of informal communication.

1. Long message chain and numerous boundaries

The findings illustrate the formal communication structure established in the project. According to Dainty et al. (2006), the long communication channels, message chains, are typical for construction projects. This conforms well with the findings in this project. Information travels a long way, passing several boundaries, represented by stakeholder interfaces. Information passes from the client, to the project manager, to the site manager, to the subcontractors and from there to the workers. This creates several problems. First, the message is vulnerable to interpretation along the way and therefore prone to distortion when passing through each interface, which evidently created misunderstandings between the project members. This finding is supported by Baguley (1994), who suggests that the risk of distorted messages through a long communication chain commonly leads to inaccurate transmissions, also called "Chinese whispers". The meaning of messages gets lost in translation.

Secondly, the formal communication structure in the studied project also contributes to a time-consuming flow of information, passing the various interfaces. Dainty et al. (2006) suggest that formal project-communication structures are inflexible and depend on the procurement approach as well as the contact form and are therefore difficult to by-pass in emergencies when rapid decisions are imperative. The inflexibility of the formal communication structure makes it hard for the communication to adapt to the present environment in the project – it most often lags behind – and can therefore be perceived to waste time. The slowness of communication was certainly an initial issue in the project which was most evident when linked to matters of concern, like the emergent problems at the site, where formal communication paths became too slow and so inadequate to transfer information quickly enough. In this context, of considerable project delays and an environment ruled by anxiety and confusion, other means of communication became necessary and resulted in individual initiatives of informal contact. The implications of the long message chains entailing numerous boundaries in a stressful project environment can, therefore, be considered as a catalyst for abandoning the established communication channels.

2. Abandonment of formal communication channels

The development of communication practices in the project is emphasized by the findings from the studied case, depicting the approach of formal and informal contacts. The problematic situation with the project process, creating delays right from the start of the project explain why the formal communication channels established were ignored. Bodensteiner (1970) demonstrated that informal

channels of information tend to arise and dominate in problematic environments with high levels of uncertainty. Unplanned incidents create periods of uncertainty, a "project crisis", which often leads to indecisiveness and eventually inappropriate decision-making (Bodensteiner, 1970). The implications described mirrors the findings in this study, and the changes to the communication network structure can, therefore, be explained by certain project events. Namely, in a particular situation when the contractor representatives ceased to convey sufficient information about the project progress, causing distrust and anxiety which are strong barriers to efficient communication flow. The consequent reactions of project organization members were to circumvent these social barriers by the creation of alternative paths of contact and information.

The implications of these actions can be traced to the high uncertainty in the project, engendered by the problematic environment caused by heavy project delays. Dainty et al. (2006) claim that the formal communication protocol can be undermined by a single piece of deviating communication. The emergence of informal communication channels in the project can, therefore, be perceived to have refuted the formal communication channels just because of one formal path being blocked. This study cannot confirm whether project decisions made during the studied period were appropriated or not as recommended by Bodensteiner about faulty decision-making but has solely focused on the development of stakeholder communication in the project. However, it can be surmised that choices made throughout this phase studied might have been affected by inappropriate decision biases due to the undermining of formal communication channels as well as the extended period of project crisis.

3. Entanglement and overflow of informal communication

The emergent structure of informal communication throughout the project progress was evident. Although much literature contends that informal systems speed up the project process, results from the studied case tell another story. Specifically, Dainty et al. (2006) suggest that projects can be completed without major delays by the implementation of informal communication structures. However, our findings indicate that large quantities and high frequency of informal communication engender an environment which is hard to control, where information falls "between the chairs" in Swedish parlance, and both task oriented as well as communicative structure are blurred. This is emphasized by one interviewee, explaining the implications of informal contact in the project:

"We must maintain our contact paths, otherwise agreements will not be documented. Moreover, we get a lot of oral agreements that are not okay. Such problems have stirred up much in this project."

It can therefore assume that informal communication structures do not follow any rules not any formalized documentation and therefore the message can easily be distorted. Another interviewee describes the project environment issues regarding the informal channels developed when task and communicative structures are unsatisfactory:

"In this project, an improved structure for contact would improve communication and the project itself. Also, to get more time to structure the information which is to be conveyed. We need more structure to get more order when we discuss who should get what information. There has been so much change in this project that we have not been able to follow our plan and therefore it has become messy. We would very much like to follow our plan."

The implications of an overflow of informal communication in a project are supported by Dingle (1997), who states that informal communication is significant for project operations, but only as long as it can be controlled. Moreover, the communication in projects is tailored according to the requirements of the interactions and therefore create informal communities (Dainty, Moore, & Murray, 2006). Our findings agree with this statement regarding the flexibility and adaptability of communication on two points.
Firstly, the findings indicate that stakeholder communication in the project is adapted according to changing stakeholder relationships between the interacting members, which alters the communication network structure along the project duration. For example, when the contractor ceased to communicate in one of the phases, and also when the project organization was replaced, and so new channels of communication arose according to these changes of relationships. This will be discussed further in the next part of this chapter. Secondly, the stakeholder communication adapted to emerging interactions between project members because of the project process and level of performance, changing the communication network structure. This became evident through the development of informal channels when poor project performance seemingly required faster and more flexible communication paths. These two factors, affecting the flexibility of the communication network are illustrated in fig 6.1.

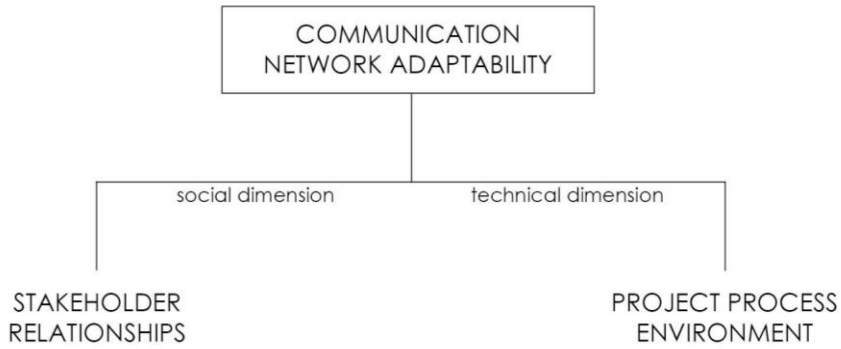

Figure 6-1: Evolving communication network - adaptability factors. Author's own copyright.

Given the findings in this study, we argue that the overflow of informal communication had the opposite effect for the project progress than that suggested by Dainty et al. - and hence did not speed up the project process. Rather, we appreciate that entanglement of the multiple informal channels originated from the uncertain project environment and thus indirectly delayed the project even more. This, because the overflow of informal communication engendered problems linked to the faulty and deficient flow of information from the start, leading to unsatisfactory execution of tasks, which in turn contributed to poor project performance. Research by Cheung et al. (2013: 947) supports this hypothesis, stating that:

"Effective management of information flow can minimize project risk and mitigate project delays and uneconomical decisions such that potential disputes can be identified and solve quickly".

Moreover, Gómez-Ferrer (2017) claims that all project issues should be managed within the formal communication network because a solid formal communication structure is paramount to avoid problems. Therefore, the ineffective management of information flow in the studied project could have reasonably contributed to the further aggravation of project delays through an overflow of informal contacts taken to remedy the situation.

Figure 6-2: Evolving communication network - project process environment. Author's own copyright.

Summary

We are therefore inclined to conclude that there is a link between the project process and the development of communication networks, illustrated in fig 6.2, namely because of two reasons. First, the emergence of informal communication paths mirrors the level of uncertainty in the project; the more uncertainty the more informal paths created. Second, the overflow of informal communication paths has the potential to negatively affect project performance. The development of communication in the project stakeholder network can be explained by the project performance accordingly: when project performance is satisfactory and things go according to plan, communication structures are easily upheld, while bad project performance creates stress and anxiety which have the potential to block formal communication. When this occurs, informal communication increases to mitigate this barrier.

6.2 Social barriers dimension

This dimension considers the implications of social barriers to stakeholder communication, namely, how the emerging relationships between project participant contributed to the development of project-stakeholder communication. According to Vogwell (2003), project participants will have different objectives and needs when committing to a project, which has the potential to create communicative issues between these actors. Our findings agree well with this statement. Specifically, the different agendas were most evident in the case where the contractor was shown to divide labor resources between the studied project and another project, favoring the other project. The implications of this action can certainly be said to have engendered communicative issues, contributing to a project environment of dishonesty and neglect of tasks. With the heavy delays and costs these early actions of neglect ultimately incurred. It

would have been interesting to follow the project further to ascertain how personal objectives and project objectives continued to be negotiated. The payment method, for instance, dictates that the only way for the contractor to gain back losses would be to extract payments from added job variations, while the project consultancy party receives a prolonged period of remuneration. The project delay is consequently not necessarily unprofitable for the actors in the project organization and so potentially contributes to diversified objectives. In such an environment, it is likely that individual motives and hidden agendas arise within the different parties. Moreover, according to Karlsen et al. (2008), duplicitous behavior and hidden objectives are perceived as especially disruptive for trust, as trust means that there are no hidden agendas. This claim conforms with the findings of distrustful behavior and hidden motives voiced by the respondents over the phases of the project. The implications of this situation clearly signify a barrier in communication, affecting the relationship development between project organization members.

It has been suggested that implications on stakeholder communication in this project, affecting the communication network structure, is not only oriented around project events and performance, but also are influenced by the relationships between the project organization members. This is supported by Koshmann & Kopczynski (2017), stating that stakeholder communication describes the extent to which organizations manage their relations and responsibilities. Findings in this study indicate that the project organization initially failed to create strong relationships and a project environment characterized by and trust, why distrust and unclarity were perceived as the major obstacles in this project according to the project organization members. The reasons for this failure were traced to several causes and resulted in misunderstandings and uncertainty. The issues emerging due to the different objectives and needs in the project were explained by one interviewee:

"It is difficult to deliver if one does not get clear directives of what is expected. Then, one can get different perceptions about what to do, it becomes unclear, which does not create trust but rather uncertainty and mistrust. We then start talking about each other instead of with each other."

The statement describes a situation concerning the emergence of distrust, consequently leading to informal initiatives of communication through backtalk and fake news. The findings indicate a feebleness of a reliant project environment and how quickly it can lead to loss of trust. The implications of building relationships based on trust and clarity become even more apparent in respect to research by Mok & Shen (2016), revealing that trust enhances project

communication, and that this in turn positively influences project performance because communication is the mediator to trust-project performance relationships. In the studied case, when cooperation became infected because the contractor ceased to communicate, project performance likewise suffered. The uncertain project environment can be interpreted as confirming this theory for two reasons: first, the distrust emerging due to broken promises and an unwillingness to share information implies that communication changed and abated between the concerning actors; second, the ineffective, or even non-occurrence of communication between these actors generated actions taken based on incorrect information, or lack of information, which affected the project by causing considerable delays.

Based on these assumptions, we contend that distrust should be perceived as a major obstacle to stakeholder communication and should be avoided. An interviewee reflected on the creation of a trust, supporting our contention:

"You can talk about trust. Then you can also work on creating trust. Many people talk about how important it is with trust and then they go out and continue to work as usual. Trust is the result of something - it is not something that comes for free. How do we then create trust? By delivering what we have agreed upon we will gradually gain better trust in each other. It's one thing what we say, but another what we do. If these conform, then the trust will come."

The course of events which the findings convey ultimately strikes at the heart of this statement concerning the earning of trust and describes the underlying reason for the social barriers which arose, and the emerging relationships established in the studied project.

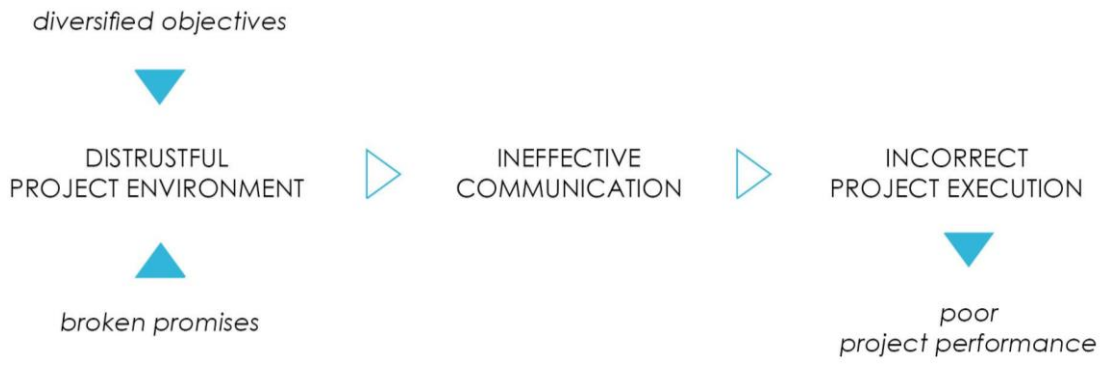

Figure 6-3: Evolving communication network - Stakeholder Relationships. Author's own copyright.

Summary

Evidently, social barriers to communication have been a major contributor to the development of stakeholder communication in the studied project. As is shown in Fig. 6.3, based on the findings and supported by the reviewed literature for this study, we conclude that distrust substantially characterized the project environment throughout this study because of certain causes linked to different objectives and broken promises. Furthermore, we maintain that there is a link between the evolving relationships between project members and the project performance because of the distrust influencing the stakeholder communication leading to delays and cost overruns. Also, our findings advance us to conclude that creating trust is sensible and requires much effort, while it is very easily lost.

6.3 Implications and summary

Construction projects are unique and characterized by a high degree of change, which consequently has engendered a very solution and initiative-driven work environment. It can, therefore, be surmised that people working within this industry value and possess problem-solving features, which enables them to manage and advance projects. Despite the construction industry being project-based and distinguished by its uniqueness, we could clearly see the absence of reflection and learning from mistakes from one activity to another, and from one project to another. This does not differentiate this project from other projects as research by Mahdiputra et al. (2005) confirms that knowledge and lessons learned in projects are frequently lost after the project completion because the project organization is dissolved, and members continue to new projects or new tasks.

However, the shortcoming of reflection indicates that construction projects are reactive, rather than proactive. The reviewed literature revealed that communication and trust are definite aspects of a communication network and that the understanding of others, depicted as network interrelations, will enable organizations to better anticipate changes, gain knowledge, and appreciate how the project delivery result is affected (Mok & Shen, 2016). The implications of a predominant reactive environment are therefore linked to the failure of capturing and exploiting knowledge. Hence, the anticipation of the effects originating from communication network structures and social barriers on the project delivery result is often missed. Instead, a proactive approach would enable construction projects to learn from mistakes and improve project performance on a new level, not only considering procedural and administrative factors, but also the social aspect and its influence on project performance.

This study contributes to the stakeholder communication literature by highlighting the effects of evolving stakeholder communication networks and the significance of trust in project organizations. Connecting to the results of this study, indications show that stakeholder communication in the project case was blocked by technical as well as social barriers of communication. The findings in this study indicate that the stakeholder communication network varies throughout the project phases according to the shifting nature of a construction project. This variation is caused by the structures of formal and informal communication paths, which varied throughout the project lifetime, but also how relationships between actors in the project developed. Stakeholder communication networks can, therefore, be regarded as dynamic and so evolves over the project phases depending on the changing relationships and progress or lack thereof during project process. This implies that project performance can be improved by better information flows and the construct of good relationships based on trust.

6.4 Limitations reflection

We believe this study contributes to the stakeholder communication literature by highlighting the effects of evolving stakeholder communication networks and the significance of trust in project organizations. However, the empirical findings in this study are based on a specific context and therefore a study on a larger scale could test these assumptions. Construction projects may be unique, but the process and organization disposition are often similar, which makes the findings in this study relevant to other construction projects, regardless of location and size. Certain literature points out how implementing informal communication in construction projects can improve project performance, e.g. suggestions made by Dainty et al. (2016), but our findings show the detrimental effects of supposed overuse of informal communication.

Considering the method used, we recognize the implication of cognitive interpretation when reviewing the results and tracing the stakeholder communication network, although the network-theory analysis model illustrations and descriptions by interviewees guided us to these conclusions. Since the creation of the stakeholder communication network encompassed these various bases of empirical and analytic material, the result can be considered more reflective. Yet, according to Bryman (2012), there is a risk of fragmentation of data which can generate a faulty interpretation of the narrative flow by the interviewee, failing to justify what has been heard and said. To mitigate this, interviewees were asked to illustrate by drawing and describing verbally concurrently. Another reflection regarding the sample of data was the apparent difficulty for some interviewees to initially understand the request of describing the stakeholder communication in

their project by illustrating it on paper. Because of our presence and hence opportunities to reply to such questions, this turned out to be a minor limitation.

Also, the interviews were conducted during a span of several weeks, while the project progressed and relationships evolved, which makes it probable that opinions and statements made by the interviewees could have changed or been affected by current moods. The findings could, therefore, have been different if carried out on another day or in another environment.

7

Conclusion and Recommendations

This chapter presents our main conclusion and recommendations. Basically, the main target is to answer the question we started with: "How can communication be improved in future projects?". Suggestions for future research are also proposed.

Project performance is directly linked to project environment. A good balance between formal and informal communication is imperative to maintain effective communication and for making informed decisions in a construction process. Although informal communication plays a significant role, it should not be overestimated (or underestimated) in a communication plan. Moreover, communication barriers need be continuously monitored to prevent distrustful environments leading to ineffective communication and project failure.

7.1 Concluding remarks

As has been pointed out in both the literature and in practice, errors and failures, contrary to inbred beliefs, are important happenings, especially for organizations that want to be viewed as learning organizations. It is through reflecting on mistakes that organizations and projects learn. Admitting to and flagging a mistake or a delay at an early stage in a project could save time and money and prevent further ensuing mistakes, resulting in miscommunication and growing mistrust. Moreover, the formality of communication plays a major role. If formal communication is disregarded, informal channels arise and dominate the communication, increasing the risks of social communication barriers. Similarly, having a dominant formal plan emphasizes structural communication barriers and result in negative outcomes. Such communication barriers, as described previously, hinder project performance, but are not limited to only barriers in communication. Rather, backwardness and lack of learning from mistakes are also performance barriers. To overcome communication barriers, organizations should look to their organizational hierarchy and try to avoid the long communication

chains that might cause confusion or misunderstandings, in addition to the time consumption. It would also be beneficial to round the view between project members and colleagues to avoid prejudice or shaping the perceived message. Transparency between project members is an essential factor for avoiding project risks and communication barriers.

7.2 Recommendations

The recommendations are based on theories, the findings from our case study, and the overall conclusions made.

- **Build a Repertoire of Case Scenarios:** The company is recommended to build multiple case scenarios based on their projects. In this case, when any crisis happens, they can refer back to their repertoire and assess the case faster, rather than thinking in the heat of the moment which mostly requires fast decision and could be inaccurate. For the repertoire to function as a knowledge bank, the cases should be cross referenced by key words to facilitate quick access to relevant examples.

- **Holistic Risk Assessment:** When any project starts, the planning focuses on building that project up. This process should also consider a holistic and proactive risk management which is not limited only to construction risks, but also covers risks concerning communication plans, project environment, stakeholder assessment, and communication barriers. To facilitate such a holistic risk assessment, a repertoire of case scenarios describing prior flaws and/or best practices would be a great resource.

- **Transparency:** Transparency should not only apply between horizontal employees; it should also be in a vertical way. Business owners should inform their workforces about their general operations to integrate them in the process and help them perform better and understanding the project goal. Moreover, different actors should show transparency under any circumstances, as the project manager mentioned “It is fine to make mistakes, we are all human, but it is not fine to hide them”. This entails spending time at the beginning of a project to create a welcoming and learning environment in which questions encouraged as is trial by error. Such an environment would improve possibilities for creating and maintaining trust.

- **Balance between formal and informal communications:** A good balance between both formal and informal communications would help to

maintain the communication plan and avoid domination by one over the other. One important way to maintain such a balance is by openly discouraging rumours and fake news.

- **Simplifying formal communication:** Formal communication should be simplified by less documentation and relevant usable templates to reduce the complicated formal network and the time required for it.

- **Employ multiple channels:** Multiple channels are meant to ease communication and keep track of the extensive use of informal communication that could arise to by-pass hierarchical filters. These channels need to have clear endpoint and clear purposes. Clearly defining who is responsible for what kind of information and knowledge area, i.e. knowing who to ask or inform, would help keep the multiple channels uncluttered from irrelevant information.

- **Build a professional relationship:** Relationships are key to increase trust between actors. However, this relationship should be maintained at a good balance to keep the trust. Investing time in building and maintaining these relations can increase confidence across the project environment, minimize uncertainty, and speed problem-solving. Here again clear responsibility areas would help.

- **Adhere a communication plan:** Forming a communication plan that would fit a certain project and having all the involved members to agree on it would avoid future domination of any formal communication over other, and that would reduce conflicts.

7.3 Further/Future research

Future research needs to focus on expanding the theories behind the network theory and evaluating the recommendations for the construction industry. As the stakeholder network theory is a fairly new topic, there little yet literatures in this field, which proposes a new evaluation method and criteria to evaluate stakeholder, rather than the traditional method which has been used for over than a decade. would be interesting to test from a learning perspective and improve for tailor-made use. The digitalization trend in construction could facilitate the development of a management software repertoire system. As smart chips are much faster in responding to requests, this would save time and money. Moreover, these systems are more powerful in creating random probabilities of different scenarios.

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Appendix

Table A 1: Summary of identified communication barriers used in forming social and structural barriers

Barrier Definition	Barrier Explanation
1.Chinese Whispers	A phenomenon of inaccurately transmitted and distorted message through a communication chain, that describes mis telling of a story from a person to another (Baguley, 1994: 13).
2. Perceptions	Misunderstanding between the transmitter and the receiver due to different meanings perceived from the communication process (Baguley, 1994: 13).
3. Group Thinking	It is often a phycological phenomenon where certain group members seek harmony above communication and rational thinking (Baguley, 1994: 13).
4. Language	Language and vocabulary used in communication must be comprehensible to the receiver; if two people speak different languages, it will result in partial or complete misunderstanding from both sides (Armstrong, 2001).
5. Emotions	Emotions are process shaped by different factors such as physiology and social experiences. This often leads to coloring the message reception (Armstrong, 2001).
6. Organization Size	Generally, it is harder for bigger organizations to communicate than smaller ones, as the number of parties involved in the process increase (Armstrong, 2001).
7. Frame of Reference	The receiver decodes the message in a way that matches his own shaped frame of reference (Torrington and Hall, 1998: 116).
8. Stereotyping	Over-generalizing beliefs about a particular people category, that lead to hearing only what they expect the person to say based on their stereotype (Torrington and Hall, 1998: 116).
9. Cognitive Dissonance	The difficulty to understand or believe what is being said due to the contradictions to the receiver's beliefs (Torrington and Hall, 1998: 116).

10. Halo / Horns Effect	Predisposal agreement or disagreement to an individual owing to a complete trust or distrust to this person. It is often referred to as stereotyping (Torrington and Hall, 1998: 116).
11. Semantics	Semantics are defined by language and jargons barriers. Although jargons are widely used to simplify a certain concept, it can be a major barrier as the receiver may have no idea to what is really meant behind the communication. That also includes technical vocabulary and language that are differently identified by persons (Torrington and Hall, 1998: 116).
12. Power	Distortion in vertical communication in organizations by employees believing that superiors have a partial understanding of their needs (Huczynski and Buchanan, 2001: 183).
13. Physical Surroundings	it an environmental and natural circumstance that impairs receiving the message by the receiver such as noise, room layout, or equipment (Huczynski and Buchanan, 2001: 183).
14. Cultural Diversity	cultural diversity hardens communication as the people mindsets from different cultures are diverse, that affects the way they perceive communication, symbols, and body language (Huczynski and Buchanan, 2001: 183).

Appendix I – Interview Template

Warm-up questions

- Name?
- Work experience at this company?
- Role and profession at this company?

Stakeholders

- Could you tell me about your work by illustrating who your stakeholders are? What is your role in relation to them? (Draw on blank sheet)
- Reasons for contact with that person (what determines it)
- How does identifying stakeholders and prioritizing them vary from a project to another (give us examples from previous projects)?
- How do you perceive the illustrated stakeholders?
- How is your relation to your stakeholders?
- How you communicate with the stakeholders (extent of contact)
    - Does the means for communication change within the project phases?
- Who of these stakeholders do you think is most important?
    - Why? How would you motivate that?

Communication

- What is communication to you? (exploratory question)
- When do you communicate?
- Why do you communicate?
- What features do you think are necessary for good communication?

- What do you experience as possible barriers for communication?
- What aspects can hinder effective communication in your project?
    - Why do you think that aspect is a barrier?
    - Could you list other major barriers that affect communication?
    - Is it common for those barriers to appear in certain phases in the project?

Collaboration

- What is stakeholder collaboration to you?
- According to you, what is the most important feature for collaboration?
- How could collaboration improve in your project with your stakeholders?

Final questions (Merging stakeholders and communication)

- Could you assess which degree of power respectively interest these stakeholders has in your project?
- What happens when you face contradicting interests between your stakeholders?
- How would you improve communication in your project?