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Improving Organizational Communication

For Better Client Requirement Communication Practices

Helsinki Metropolia University of Applied Sciences

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At this very moment, it feels unbelievable that this year-long journey is coming to its end.

First of all, I want to thank my instructors Dr. Thomas Rohweder and Zinaida Grabovskaia for all the hard work you have done to keep me on the right track and for guiding me through this writing process. I really enjoyed all the lectures and for once I feel like I have truly learned something valuable.

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This Thesis focused on improving organizational communication and enhancing the information flow from the client to the back-office. The case company is an engineering office offering solutions and design services to private and public entities which has not yet established its client requirement communication practices.

The Thesis followed the research approach of Applied action research and used qualitative research methods to gain deeper understanding of the challenge at hand. The topic of this Thesis was approached by conducting workshops, interviews and analyzing the existing employee satisfaction surveys. The research approach was chosen according to the nature of the research objective.

The current state analysis revealed strengths and weaknesses in the current communication practices. The strengths relate to the already existing effective collaboration between designers and drawers in the back-office. The identified weaknesses revealed that the information flow from the client to the back-office was lacking clear structure and practices. Due to the results of the current state analysis, improvement proposals needed to be made first for organizational communication and current project practices before client requirement communication practices could be created.

The outcome of this Thesis is a set of proposals for improving current project practices on *Start meeting, Project meeting, Project communication* and *Design audit process.* Based on the proposed improvements client requirement communication practices was created. Once the proposed improvements are implemented, the case company can improve their project performance and process client requirements more systematically.

Keywords	Project management, organizational communication, information flow, co-creation

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1 Introduction

Communication means passing information between people in a way, that the information can be understood by the receiver. Organizational communication includes people from different branches and backgrounds while the information moves through different channels and networks. It is essential for the information to reach the right people at the right time, so the managers can make the right decisions. In project-oriented companies, the importance of communication emphasizes because many of the work tasks are based on teamwork, and cooperation with different nodes and branches inside and outside of the company.

Organizational communication is relevant for any type of business, big, mediocre or small. Even a small company needs to communicate outside of his business to a supplier or to a client. One of the ground stones for a prosperous business is the communication with suppliers, customers and inside the company. Therefore, communication between these parties is essential for a business deal to happen in the first place.

When companies grow and involve more people, the more crucial it is that communication between different nodes is fluent, fast and clear. If communication with the client becomes difficult and information does not flow from client to the back office efficiently, it might cause delays, misunderstanding and missed deadlines or even wrongly delivered orders. As majority of manager's work hours are spent on meetings, in order to ensure fluent information flow in the company, managers need to arrange the time to collect and analyze the information from numerous emails and phone calls they receive on daily bases. According to Fisher (as cited in: Spaho, 2012: 311-312), when the communication is downwards from managers to the back office and the information must go through four organizational levels, 50% of the original message is lost. As 50% is too much, the importance of organizational communication cannot be emphasized enough.

To tackle this important issue in the case company of the researcher, this thesis is about enhancing information flow from the client to the back office.

1.1 Business Context

Kalliosuunnittelu Oy Rockplan Ltd (later referred as Rockplan) is an engineering office founded in 1986, which specializes in rock engineering. During the years, services have multiplied and now include the fields of architecture, geology, rock mechanics and structural design, keeping the focus on underground facilities.

Rockplan operates from Finland and has two offices, main office in Helsinki and side office in Turku. Most of the Rockplan projects are carried out in Finland but since 2018 the company has been a part of larger projects taking place in Sweden. In international projects, Rockplan usually acts as the sub-consultant for larger operators.

The main customers are government, cities, energy companies or large private operators. End-user is typically a person living in the capital region of Finland using public transportations or parking his car in a public or private underground parking facilities.

The main fields Rockplan operates are infrastructure, urban projects, turnkey and mining, civil defense shelters and nuclear industry. Typical project requires joint designing from different branches inside the company; rock mechanics, geology and environment, architectural and structural design. The client orders other services like HVAC (heating, ventilation and air conditioning) design from other companies directly, which means that Rockplan needs to work in collaboration with other engineering offices.

Rockplan projects are implemented with close co-creation with the client and sub-contractors. The customer is present actively from the moment contract is signed to the moment that the project is completed and operating. This time period may take from few months to years, depending on the size of the project and the services included. Sometimes the customer relationship continues even years after the project has ended, if for example consultation is needed before something new can be built near an existing underground facility.

In Rockplan, it is usually a project manager who is responsible for communicating with the client and forwarding of the gathered information and requirements to the back office to designers and technical drawers. When other engineering offices and sub-consultants are added to this equation the amount of information transferring daily back and forth grows exponentially. Managing large amount of data and screening the important and

essential information to pass on to the right persons in the back office, requires vigilance and excellent delegation skills from project managers.

In multi-office projects, a principal designer is determined. The principal designer then oversees cross checking of all design areas. Branches and designers communicate directly with each other, but all the information should also go to principal designers' knowledge. Figure 1 presents a project organization as its most complex.

Figure 1. Large and complex projects involve all parties.

As presented in Figure 1, in big multi-office projects there can be tens of parties involved in the process. Different designs are dependent on each other and coordinating plans is challenging. When there is up to 10 persons working in every branch, the total amount of people involved can grow up to hundreds. In Finland this is still small compared to big world class projects involving thousands of people.

1.2 Business Challenge, Objective and Outcome

In Rockplan projects, changes demanded by the clients are sometimes executed in the designs over a very short time frame. For these changes to get implemented in the given time frame, the request from the client needs to reach the back office and designers in appropriate time. To ensure this information flow, a systematic client requirement communications practices should be applied.

Regardless of relatively long lifecycle of Rockplan, it has not yet established a systematic client requirement communication practice. This has led to a situation where information blockages have appeared, and the information has not reached the designer in time.

Accordingly, the objective of this Thesis project is to *establish client requirement communication practices for Rockplan*. These practices should be clear and easy enough, so they can be easily implemented in to the daily operations of the company. The goal is to make everyday communication of client requirements more efficient.

The outcome of this Thesis is a proposal for client requirement communications practices for Rockplan.

1.3 Thesis Outline

The scope of this Thesis is to propose the client requirement communication practices for an engineering office working in close cooperation with its clients in large and demanding underground projects.

This Thesis is divided into seven parts. Section 1 introduces the case company and the Thesis project. Section 2 of this Thesis presents the methods that were used to collect data and information about the current state in Rockplan; how the problem is approached and what are the evaluation criteria for this Thesis. Section 3 is focused on the current state analysis of Rockplan, how the current sate analysis was conducted and what were the key findings. The current state analysis consists of three parts, the analysis of a collection of old employee satisfaction surveys, workshop and collection of interviews conducted in Rockplan.

Section 4 contains the review of theory and literature. The focus areas that determined the theoretical part are based on the findings of the current state analysis. Section 5 presents the initial proposal for client requirement communication practices created for Rockplan. Finally, Section 6 presents the feedback of the managers and key stakeholder. The final Section of this thesis presents the conclusions and summary.

2 Method and Material

This section describes the research approach and the data collection and analysis methods used for this study.

2.1 Research Approach

Traditional research is focused on theory and to gain new knowledge of a phenomena (OECD, 1980: 25). Since knowledge is the intrinsic value of the research and the purpose of a traditional research is not to solve an existing problem, but to understand it, another type of approach is used for this study.

In applied research, the goal is also to gain new knowledge, but the focus is more on solving a practical problem (OECD, 1980: 25). In Applied action research, the focus of the study is placed on a practical problem involving people and the problem is solved by making the people part of the change process. (Kananen, 2013: 40-41). Traditional Action research typically consists of four steps: planning, action or change, evaluation and follow-up (Kananen, 2013: 42). These steps are repeated as many times as required to achieve the desired outcome.

In this study, the Applied action research is conducted in three steps: planning, action and evaluating. The fourth step, the follow-up, will happen outside of this thesis. The research approach was chosen according to the nature of the research objective and outcome. The author of this study is participating in the change done in co-creation with other members of the organization. Accordingly, the research approach for the current state analysis used qualitative research approaches for gaining a deeper understanding of the problem.

Qualitative research methods are used when a deeper understanding of a problem is needed. Qualitative research approaches are flexible and adapt to a variety of situations. The results of qualitative research approaches are presented in words and sentences while quantitative research approaches usually produce numbers and statistical data (Kananen, 2013: 31-40). In this study, qualitative research methods were chosen for this study to gain deeper understanding of the current client requirement communication in

Rockplan. Qualitative research methods enabled the organization members to express their emotions, which would have been challenging with quantitative research methods.

Thus, the Applied action research based on using qualitative research methods were selected for this study. The data collection relied on interviews, group workshops where different kind of opinions were discussed, and thirdly a set of written interviews conducted with those who did not want to or were not able to participate in the workshops.

2.2 Research Design

The research design of this study consists of stages of data collection and follows the chosen Applied action research approach. The research stages are presented in Figure 2 below.

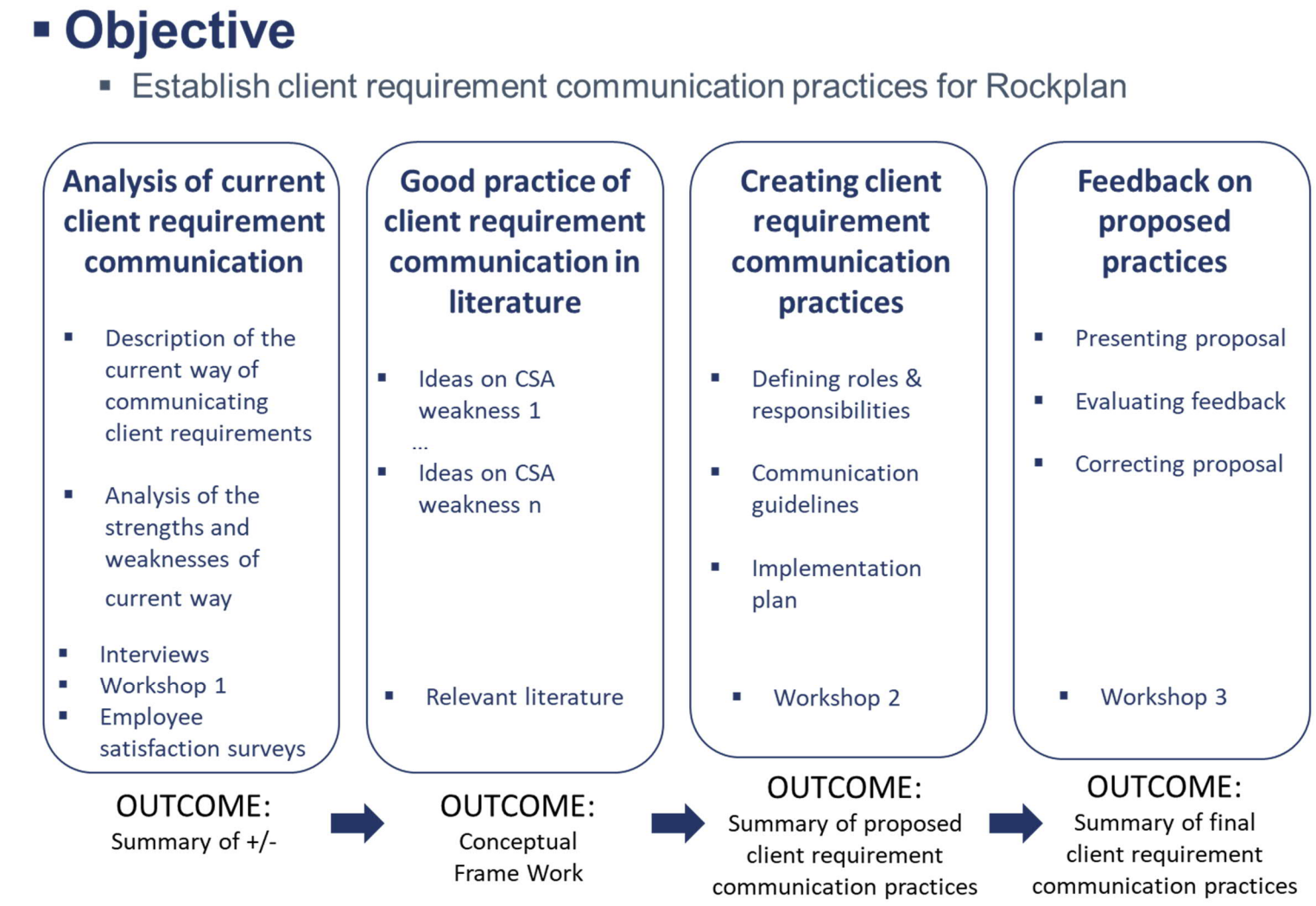

Figure 2. Research design of this study.

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As seen in Figure 2, the objective of this Thesis is to establish client requirement communication practices for Rockplan. In the next stage, the current state analysis is conducted of the current client requirement communication practices. The topic of this Thesis was approach by conducting workshops, interviews and analyzing existing employee satisfaction surveys. The current state analysis was done in order to find the strengths and weaknesses of the current way of communicating client requirements and it served as the bases for the co-creation of proposed improvements. After discovering the bottlenecks of the current client requirement communication practices, best practice and ideas were searched from literature for creating a conceptual framework.

In the next stage, improvement proposals for internal organizational communication and for client requirement communication practices were created. These improvement proposals for internal organizational communication make the foundation for client requirement communication practices after implementation. Improvement proposals for defining roles and responsibilities were also created to support the proposed client requirement communication practices.

Finally, in the last stage of the research design, the evaluation of the initial proposals was done by Rockplan management and key stakeholders, who had an opportunity to give feedback on the presented proposals. At this stage, the feedback was collected to the proposed improvements presented to the key stakeholders. The comments and new improvement proposals were implemented in to the proposed practices and the outcome of this stage was the summary of final proposal for client requirement practices waiting to be implemented outside this thesis.

2.3 Data Collection and Analysis

This study draws from multiple data sources and was conducted in three data collection rounds. The primary source of data were the interviews and workshops conducted with people from different branches and teams to reach the widest possible perspective on the problem in hand.

In Data 1 collection, the data collection started with a personnel satisfaction survey to define the employee satisfaction with the current state (Appendix 1). The purpose of this short survey was to warm up people with the upcoming development process rather than

actual data collection. Also, the workshop 1 (Appendix 2) for the current state analysis and data 1 included preliminary questions which around a free discussion was built. The focus of the workshop was on defining the strengths and weaknesses of the current way of communicating client requirements. Additionally, some of the interviews were done by email due to the interviewee's own wish. The answers were assumed to be thoughtful and present a realistic state of the current state. The interviews done through email, were based on the same similar questions. The interviewees represent the fields of rock mechanics, architecture, geology, structural design and project management. The author of this study is a representative of the project management team.

All the interviews and workshops conducted are presented in Table 1.

Table 1. Details of interviews, workshops and discussions in Data 1.

	Participants / role	**Data type**	**Topic, description**	**Date, length**	**Documented as**
	Data 1, for the Current state analysis (Section 3)				
1	Respondents 21	Personnel satisfaction survey	Employee satisfaction with the current state	Nov 2018, open for two weeks	Field notes
2	Participants 1-8	Workshop 1	Current state analysis, analysis of strength and weaknesses of the current state	Jan 2019, 2,5h	Field notes
3	Respondent 9:	Interview by email	Current state analysis, analysis of strength and weaknesses of the current state	Jan 2019	Field notes
4	Respondent 10:	Interview by email	Current state analysis, analysis of strength and weaknesses of the current state	Jan 2019	Field notes
	Data 2, for Proposal building (Section 5)				
8	Participants 1-8	Workshop 2	Proposal building	March 2019 3,5h	Field notes
	Data 3, from Validation (Section 6)				
9	Participants 1-10	Workshop 3	Validation, evaluation of the Proposal	April 2019 3h	Field notes

As seen from Table 1, for collecting Data 2, another Workshop was held with eight participants, who some of were the same as in Workshop 1. The workshop 2 focused on creating solution proposals and removing bottlenecks. Finally, Data 3 was collected at the feedback session held with key stakeholders.

The workshops were conducted in the company premises as a group discussion around questions created in advance. In workshop 1 for current state analysis, the participants were asked two draw and illustrate their answers. This helped to see if something was already mentioned or missing and if the participants had pointed out same strengths or weaknesses. The illustrations and drawings were transcribed shortly after the workshop. Workshop 1 provided the biggest data for the current state analysis and pointed out the areas for further development. The findings from the current state analysis are presented and discussed in Section 3.

3 Analysis of the Current Client Requirement Communication Practices

This section presents the results from the current state analysis of the client requirement communication practices used in Rockplan. It analyses how the information moves, who are involved and what are the strengths and weaknesses of the current methods. The first part presents the overview of the analysis, the second part presents the current client requirement information flow, and the third part presents the identified strengths and weaknesses of the current client requirement communication practices with a summary of key findings.

3.1 Overview of the Current State Analysis Stage

The current state analysis was conducted in five stages. The first stage reports on the organizational structure which presents the variety of services provided by Rockplan. In the next stage, three scenarios of client requirement communication situations were recognized and analyzed. These three different scenarios helped to determine if the weaknesses were the same in each scenario. These three scenarios used in the current state analysis were *Requirement from the client, Requirement from the cooperating company* and *Requirement from client to sub-consultant.*

After determining the starting point for this study, the current state analysis with the Rockplan employees was conducted. In the third stage of the current state analysis, old company employee satisfaction surveys were analyzed to see if any problems with the company inner communication had been raised earlier. The analysis confirmed that there was a need for improving the client requirement communication practices inside Rockplan. The old company employee satisfaction surveys revealed that the communication of project managers had caused dissatisfaction among employees previously. Since the latest employee satisfaction survey was conducted in the beginning of 2017, a new employee satisfaction survey was launched to define the employee satisfaction with the current state and prepare employees for the upcoming development process. The survey also presented that even though employees were not satisfied with the current communication practices in projects, they also felt that their own communication skills were inadequate.

The fourth stage, after analyzing the employee satisfaction surveys, was a workshop for identifying the strengths and weaknesses in the current client requirement communication practices. The purpose of workshop 1 was to give employees an opportunity for open discussion of the current client request communication practices. The participants represented five different branches and different nodes of the current information chain. This enables the diversity of answers and more reliable qualitative analysis. The logic of the workshop was to discuss how the client requirements are currently communicated in Rockplan, who are involved in the information chain and identify the weaknesses that need further development. The workshop participants were asked to determine the bottlenecks of the information flow and point out the parts that worked well for them.

The fifth stage contained the interviews with people who did not want or were not able to participate in the workshop 1 for clarifying their opinions of the current client requirement communication practices. The interviews were conducted by email due to the requests of the participants. The logic of the interviews was the same as in workshop 1, but the interviewees were allowed to use as much time as they wanted to answer the questions. The current state analysis of the strengths and weaknesses is based on the information gathered in these interviews and workshop.

According to the findings from these stages, an analysis of key findings of strengths and weaknesses was done.

3.2 Organizational Structure of Rockplan

Presently, Rockplan offers its clients various services that are divided under five branches that are led by branch managers. Projects usually involve people from several different branches which requires people to work in close cooperation over the branch borders. The branch manager can also operate as a project manager in larger projects and oversee the whole project. Rockplan organizational structure is presented in Figure 3.

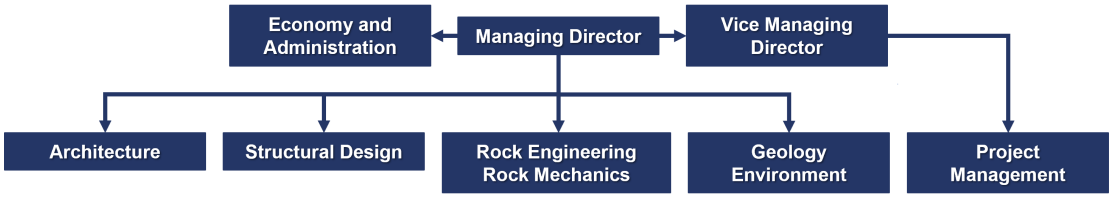

Figure 3. Organizational structure of Rockplan.

As seen in Figure 3, Rockplan has a Project Management team which aim is to co-ordinate and manage projects, this gives branch managers and team members more time and space to concentrate on designing unique customer solutions.

Even though employees are divided under branches, their main work happens in these multi-branch projects. Branches are a support system for designers where they are able to get help or brainstorm on a specific challenge.

3.3 Client Requirement Communication Scenarios

For this analysis, three different client requirement communication scenarios were recognized and analyzed. These three scenarios were used in the current state analysis conducted with the company employees. In large projects, there are several possible scenarios, but the three scenarios chosen, occur in Rockplan projects most often.

First, *Requirement from the client* is a situation where a client wants to change something in the design. Maybe the demands for the final facilities have change, new needs have appeared, or a more cost-effective solution must be created. This requirement comes usually in a form of an assumption that everything can be done. It is then a project manager's responsibility to inform the client if the requirement is doable and how much time it will take to implement the requirement in to the designs.

Second, *Requirement from the cooperating company* is a situation where the client has ordered different parts of the design from other companies. These requires close cooperation from the designers and flexibility. This scenario happens when a cooperation company does a major change in their design that will have an effect on every other parts of the project. This kind of situations occur if a specific technical device requires more

space that was originally estimated. This has to be taken account in architectural design that needs to make space for that device. If the walls, ceiling or roof are moved, then more space needs to be excavated and the load-bearing structures need to be redesigned. The client decides ultimately if the changes are implemented or does the device has to be changed to fit into the designed space. A requirement from the cooperating company should be treated with caution and the client should be aware of any required changes.

Third, *Requirement from the client to sub-consultant* is a situation where the client has ordered from Rockplan services that it cannot offer. In those situations, Rockplan has ordered services from a sub-consultant. In some projects all communication happens through Rockplan**,** but sometimes the client and the sub-consultant communicate directly with each other. The reasons for using a sub-consultant might be economical or administrative. For a client it might be easier to receive one larger invoice instead of multiple smaller ones. Sometimes sub-consultants are used in Rockplan to help with a heavy workload.

These three scenarios were used in the current state analysis with the company employees due to their frequency and clear pattern. The scenarios were easy for the employees to recognize and identify with.

3.4 Analysis of Current Client Requirement Communication Practices

For the purpose of this analysis, the study created an overview of the current client requirement practices based on the collected data. The collected data was analyzed, and the information flow was defined. All analyzed scenarios, *Requirement from the client, Requirement from the cooperating company* and *Requirement from the client to sub-consultant*, included three main stakeholders: *Client, Project Manager* and *Designer.* Scenarios also included other roles such as drawers and project coordinators, but their roles and responsibilities vary depending of the project.

3.4.1 Requirement from the Client

In the first scenario, the requirement comes directly from the client. In the simplest scenarios and most common in small projects, where only three active stakeholders are

involved: *Client, Project Manager* and *Designer*. Figure 4 shows these roles in darker blue boxes and active information routes are presented with solid arrows.

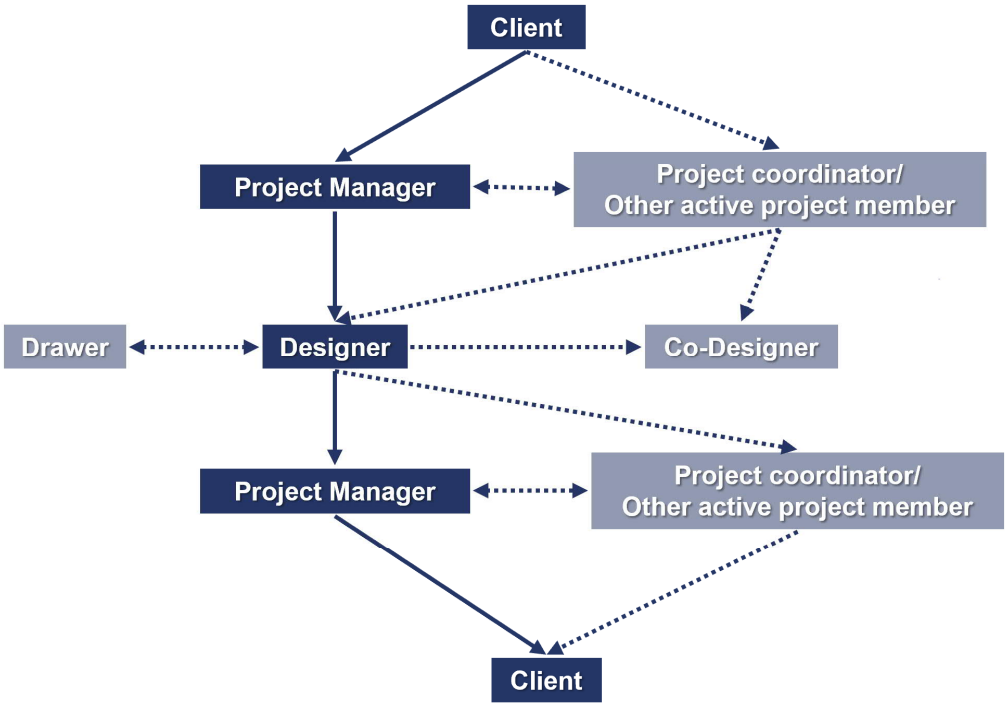

Figure 4. Information flow chart in scenario 1.

As seen in Figure 4, in addition to Client, Project Manager and Designer, there can be other stakeholders as well. The lighter blue boxes in Figure 4 present the participants that can be involved in a project depending on its nature. These information routes are presented with dashed line to present the possibility of the involvement of these participants.

Scenario 1, *Requirement from the client,* begins as the client contacts the project manager or/and another active member of the project team, who in some project is an assigned project coordinator. The request may come via email, phone call or verbally in a meeting. The requirement can be in a form of a question: *"Is it possible to add/remove/change…?"* or an external pressure: *"According to the authorities, we need to add/remove/change…".* The responsibility of the project manager is then to answer the client if the requirement can be implemented and give the client an estimation of schedule and costs.

If the client only contact is the project manager, the project manager is the only one holding the information in the project and is responsible for forwarding the information to the right person. As there are many kinds of human delays; other meetings, phone calls, emails or the right person is not available at that very moment, there is a risk that the information gets on hold, gets changed along the way, or is forgotten. If the client contacts Project Manager and another active member of the project, the probability of forwarding the information to the right person, increases.

When the information reaches the back office and the designer, there is a risk that some of the promised delivery time has already been spent on the travelling time of the information. This time is away from the actual designing of the requested solution. When the designer gets requirement, it should contain information of the necessary data for completing the task, the schedule and the information about available resources. The questions that the designer then ask themselves are: "*Is this information sufficient? Is this information relevant to another designer? Is the schedule realistic?"*. There have been situations where the client and the project manager has estimated that the requested change can be easily implement into existing designs and the task is simply enough to be executed in short amount of time. When the requirement has reached the Designer, who has then had to explain the real complexity of the task. This contradiction stems from the fact that the client and the project manager have a broad understanding of the project, but they lack understanding of the implementation and the associated nuances.

Due to not being in direct contact with the client or not attending to project meetings with the client, the gap of understanding between the client and the designer can continue for some time. As a result, when requirements are received and returned due to contradictions in understanding or in practices of implementation, unnecessary time is wasted in the process of forwarding information. Such contradictions in understanding lead to endless email chains that are easily buried under other urgent messages.

After completing the requested designs, the designer delivers the designs to internal audit to the project manager. This may return the designs back to the designer if some alterations need to be done. After internal audit process, Project Manager or project coordinator delivers the designs to the client.

3.4.2 Requirement from the Cooperative Company

In the second scenario, the requirement comes from a *Cooperative company*. This is a situation that occurs when client has ordered some parts of the design from another engineering company. This requires close cooperation between all three stakeholders, client, project manager and cooperative company. Scenario 2 is presented in Figure 5.

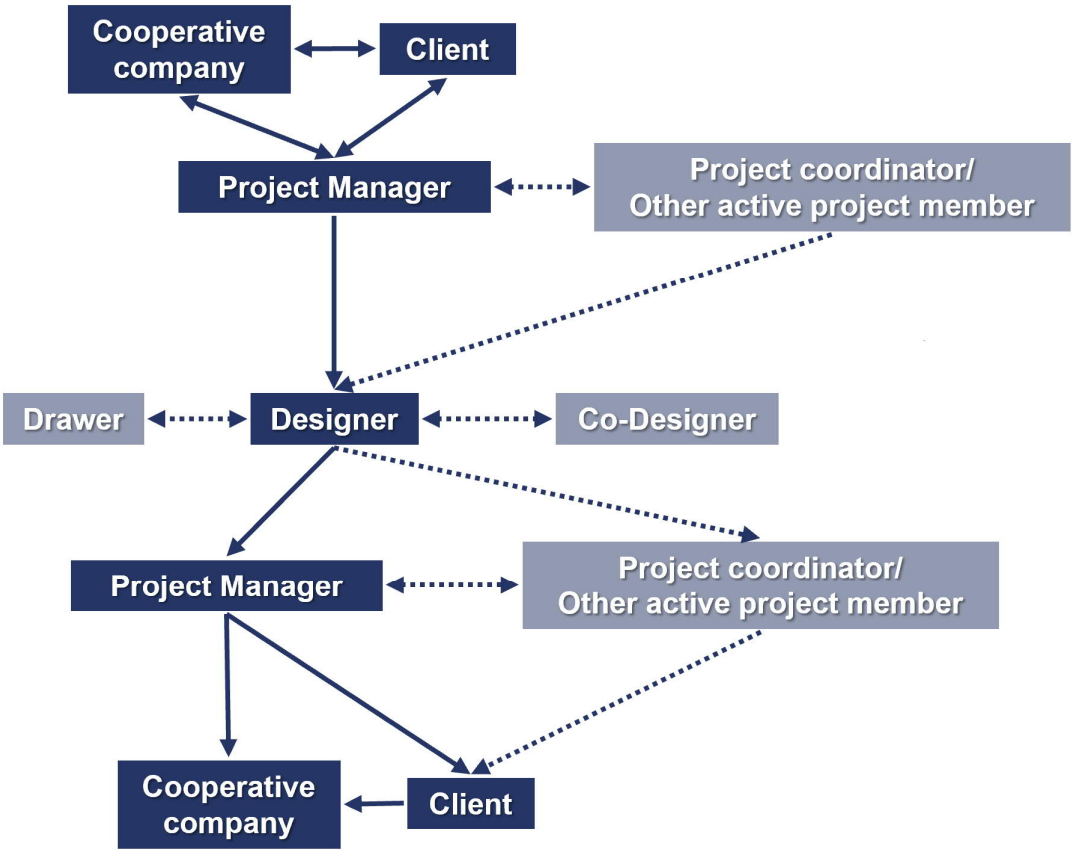

Figure 5. Information flow chart in scenario 2.

As seen from Figure 5, the stakeholders of the information chain are the same as in scenario 1, only addition is the cooperative company. However, this information chain varies from scenario 1, in the sense that before the information is passed to the designer, the information is rotated among the three stakeholders: client, project manager and co-operative company. The requirement presented by the cooperative company must always be approved by the client before execution. Usually there are multiple solutions that are considered before the final decision. After the final decision has been made by the client, the project manager forwards the decision and instructions to the designer.

In other parts, scenario 2 works in the same way as scenario 1 presented in previous Section 3.4.2 Figure 4. There may or may not be a project coordinator involved who follows that designs are done and delivered in agreed schedule. If a project coordinator is not part of the project, then the project manager will do the follow-up.

While in scenario 1 the client may have also been in contact with another active project member or a project coordinator to ensure the requirement being received, cooperative companies seldom do. They may have an unclear vision who they should contact, and sometimes contact the wrong person in the project.

3.4.3 Requirement from the Client to the Sub-consultant

In the third and final scenario, the requirement comes from the client but is targeted for a sub-consultant working under Rockplan**.** Sometimes the client communicates directly with the sub-consultant and the sub-consultant is treated like a cooperative company. In other situations, all the communication between the client and the sub-consultant happens though Rockplan project manager. The scenario 3 is presented in Figure 6.

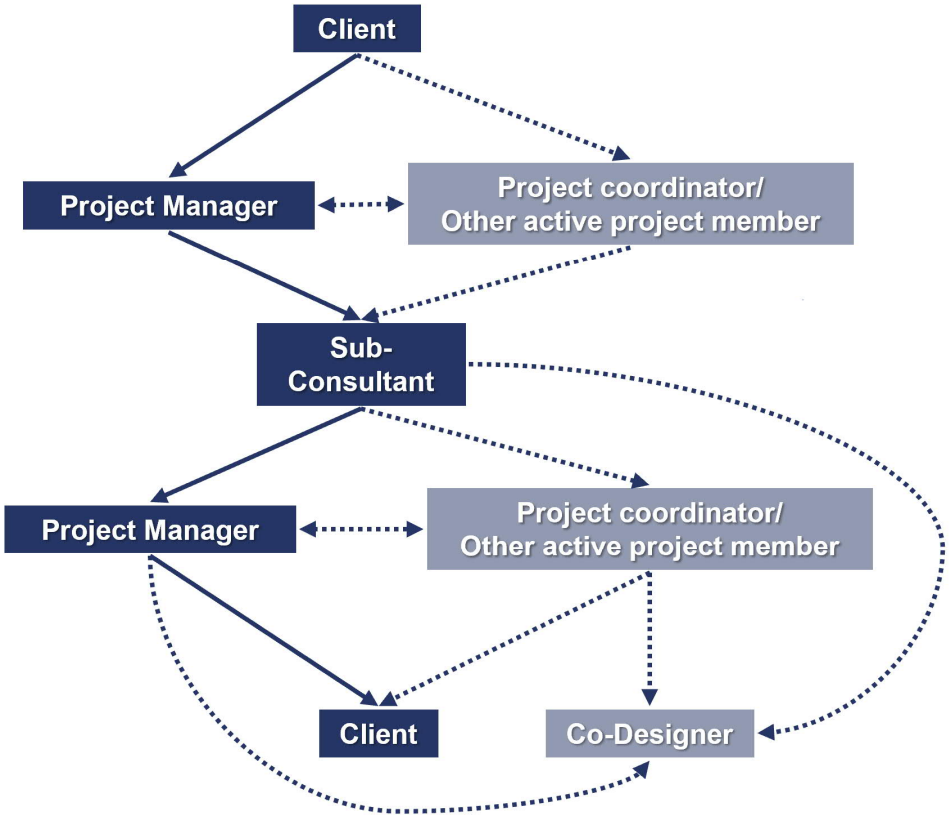

Figure 6: Information flow chart in scenario 3.

As seen from Figure 6, the information chain differs from scenarios 1 and 2. If there is a co-designer that should be involved in that particular request, either the sub-consultant will communicate with co-designer directly or the information goes through the project manager. These are project specific practices to be agreed upon separately. In scenario 3 kind of situations, Rockplan role is purely transmitting the information between two stakeholders and supervise the sub-consultant work. In some projects, this can take a significant amount of project manager's time, which could be used more efficiently.

3.4.4 Summary of the Communication Scenarios

When combining of all these three scenarios in Figure 7, it can be seen, that two main stakeholders are identified in each scenario. These two main stakeholders, client and project manager are the links between all information coming in and going out of Rock-plan.

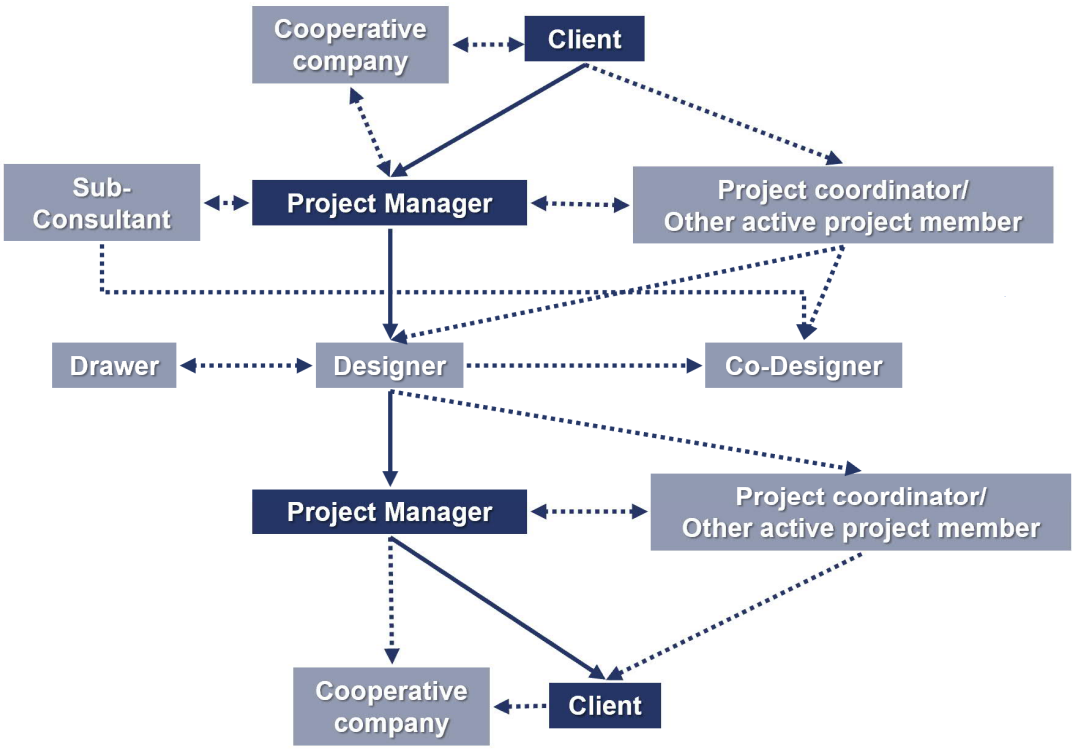

Figure 7. Summary of scenarios 1, 2 and 3.

As seen in Figure 3, only in some projects the responsibility of communication is divided with a third stakeholder, other active team member or a project coordinator.

According to the current state analysis, stakeholders experienced that in projects involving a project coordinator, the communication was more fluent and efficient. When the information is gathered behind a single person, forwarding it to the right person is more laborious. When a project involves both sub-consultants and cooperative companies, processing the incoming information and controlling that information may be overwhelming for a single project manager to handle. If a project manager is managing other projects as well, the incoming information doubles or triples, and the response times are prolonged. When a single person is responsible for all the communication, a sudden absence can delay even the whole project.

3.5 Strengths and Weaknesses of the Current Client Requirement Communication Practices in Rockplan.

Based on the results from the current state analysis, and especially from the interviews with the company employees, the weaknesses of the current client requirement communication practices were identified as the bottlenecks in existing communication. The strengths and weaknesses are presented in Table 2.

Table 2. Strengths and weaknesses of the current client requirement communication practices.

Strengths
• Designers and drawers communicate well together • Designers perform fast once they have received all the information needed • Face-to-face discussion work well, are informative and clear • Internal project meetings work well, when all stakeholders are present • Skype-meetings are actively used • If a project has a project coordinator, the information moves easier
Weaknesses
Communicational Challenges: • Project managers are not always present at a project meeting • Project managers forget to pass on the information • Too much information gets build up behind project managers • Designers feel like they don't get enough feedback Unclear roles and responsibilities: • Designers must step in, if project manager do not reply to a client • Project managers are out of the office/unavailable • Many decisions are waiting for the project manager • People who are not part of the project, get involved

As seen from Table 2 that many of the weaknesses are focused on the challenges experienced with the management of the projects. The weaknesses were divided into two categories: *Communication challenges* and *Unclear roles and responsibilities.* Even though the current state analysis revealed more weaknesses than strengths, the general atmosphere in Rockplan projects was described as good and relaxed. The strengths and weaknesses are described in detail below.

3.5.1 Strengths

The strengths from the current state analysis revealed that the communication inside the back-office with designers and drawers is easy and supportive. The strengths were easy for the employees to point out and they felt that their overall work in the back office was clear and cooperation between in-house-branches was easy and worked well.

The first strength was that the employees felt that designers and drawers communicate well with each other. This was mainly because drawers are available at the office most of the time, and designers felt they had help in hand all the time. The workstations of designers and drawers are close to each other and they communicate mainly face-to-face, so problems and tasks are easy to explain and solve in cooperation.

The second strength recognized was the work designers did when they had all the necessary information. They work efficiently and create logical solutions in short notice. But what was surprising, the designers felt that most of the time they got a task based on a client requirement, the information to perform that task was inadequate. The efficiency of the designers was listed as a strength that is existing, if it is utilized by the best possible way.

The third strength recognized was face-to-face discussions. According to the current state analysis, the information inside the back-office flows best by communicating face-to-face. The problems are solved together, and ideas are easy to throw into the air with low-threshold. This also strengthens the bond between team members and has an influence on the general atmosphere. The current state analysis showed that the employees felt that it was easier to approach a colleague if they were available at the office. There seemed to be a small threshold for sending internal emails if the colleague was not physically available.

The fourth strength recognized was the internal project meetings. Employees felt that it was the one place where all team members were present at once and the general issues of a project were discussed. This helped team members to know what their collogues were working on and prepare themselves for their next tasks. What was raised in the current state analysis was the fact that internal project meetings worked best if the project manager was present to share tasks and lead the project. The employees felt that if the project management was absent from the internal project meeting, the team could only discuss about the problems in hand, but any actual decision could not be made.

The fifth strength recognized was the active use of skype meetings. With Rockplan having several offices, the communication between offices happens mainly through skype-meetings. The project meetings are also held so, that there is always an opportunity to join the meeting remotely. This has gotten a warm welcome and people have been satisfied with the technical quality of the meetings.

The last strength that was identified was the use of a project coordinator in some of the projects. In those projects the project coordinator got almost the same information as the project manager and was able to forward the information to the project team more rapidly. The current state analysis also pointed out, that if the project manager was unavailable, they felt relieved that there was a project coordinator who could help them with practical matters and worked as a link to the client. Using a project coordinator in project is a quite new concept for Rockplan so for now, they are not used in every project.

As seen from the analysis above, the strengths were focused on the things happening in the back-office after receiving the client requirement. This confirms the conclusion that the bottleneck is located between the client and the back-office.

3.5.2 Weaknesses

The weaknesses identified in the course of the current state analysis were divided into two categories: *Communication challenges* and *Unclear roles and responsibilities.* Communicational challenges were based on the stakeholder feelings that they were not getting the right information on time and they were not receiving enough feedback on their work either. Unclear roles and responsibilities may lead to a situation where the project team members are not sure who does what.

The first communication challenge identified was the absence of project manager in internal project meetings. The internal project meetings were mentioned also as a strength but for project meetings to become the strength they need to have a purpose. Sometimes the project team do not need the project manager to be present to solve problems, or to tell what the next steps are. The current state analysis showed that the team needed primarily a leader, who by attending to the internal project meetings proved his commitment for the project and the team.

The second communication challenge was based on the feeling stakeholders had, that they were sometimes putting out the biggest flames, instead of focusing on performing in the best possible way. The current state analysis showed that the employees sometimes felt that the project managers passed the client requirements to them when it was already late. Especially the designers hoped that they could be more involved in the decision making so they would always have the first-hand information.

The third communication challenge refers to the information scenarios presented in 3.4.1. When the project manager is the only contact person to the client, it leads to a situation where the information gets built up behind one person. It is understandable that processing a large amount of data daily, leads to a situation where all the information is not processed as required. When the person holding all the data is out of the office or absent, naturally the information is not getting forwarded to the right persons at the right time.

The last communication challenge reveals the other side of the information blockage. If the team members feel that the project managers are sitting over the client requirements, some team members also feel that they don't get enough feedback on their work from the project manager. They do their work on daily bases and create designs that are executed on the worksite, but they feel that they are not getting any feedback from the project manager if the client was satisfied with the designs or if the solutions suggested were usable. The current state analysis showed that the team members wanted the feedback so they could improve their performance. The lack of feedback can also be interpreted in a way that the team members get a feeling that their work is not appreciated.

The first weakness under the unclear roles and responsibilities is when the designers or other team members must to step in, when the project manager is not keeping his responsibilities. If the client does not get answer from the project manager, he will contact someone else in the organization. If the project manager is out of the office or unavailable, someone else must step in and give an answer to the client. In long term, failure to answer to client requirements, can have consequences on future projects.

This leads us to the second and third weakness which are related to the unavailability issues with project managers. Project managers usually have several projects to manage and lead. Several projects mean several meetings, which means that most of the time the project managers are on a meeting or on their way to a meeting. This has led to a situation where team members are on hold at the back-office. The team is unable to proceed further on the project without the instructions of the project manager, who may or may not be out of the office for undefined time. According to the quality instructions of Rockplan, all designs must be audited inside the company, usually they are audited by the project manager. This leads to a situation where a design would have been ready in time, but the delay was caused by the prolonged design audit process.

The fourth challenge related to roles and responsibilities can be assumed to be quite universal. Everybody has their own opinion on things, but there is always someone that is more willing to share his own ideas to a project he is not officially involved in. People who go behind a project manager's back to give his own instructions to designers and drawers cause confusion. Usually these instructions are not aligned with the general guideline of the project. People who have difficulties to understand their own roles and responsibilities are very unlikely to respect other persons roles and responsibilities. According to the current state analysis this is an acute problem in many company projects and most of the respondents had experienced this as a nuisance.

3.6 Summary of Strengths and Weaknesses

Summing up both the strengths and weaknesses, the current state analysis revealed that the project managers were recognized as being the bottlenecks of the client requirement communication. The unavailability of project managers also has caused dissatisfaction among team members. The team members felt that the projects were properly managed because the project teams are very much self-directed, but the employees felt that they needed stronger leadership. The greatest strength identified supported the effective collaboration between the designers and the drawers in the back-office.

The current state analysis revealed that sometimes the client requirements are lost in the project manager's email flood, or they are forwarded days or weeks after they were received. In the worst-case scenario, the client did not get any respond and was forced to contact someone else.

4 Existing Knowledge on Client Requirement Communication Practices

This Section discusses existing knowledge from literature on enhancing the client requirement communication practices. The existing knowledge together with the results of the current state analysis create a conceptual framework for this Thesis. The conceptual framework will be used in co-creational proposal building in Section 5.

4.1 Defining Roles and Responsibilities

To lead and manage projects successfully, defining roles and responsibilities with clarity are the first and most important steps in a project (Anantatmula, 2010: 20). Figure 8 presents project performance model, containing of people-related factors that can either act as enablers or barriers for project success.

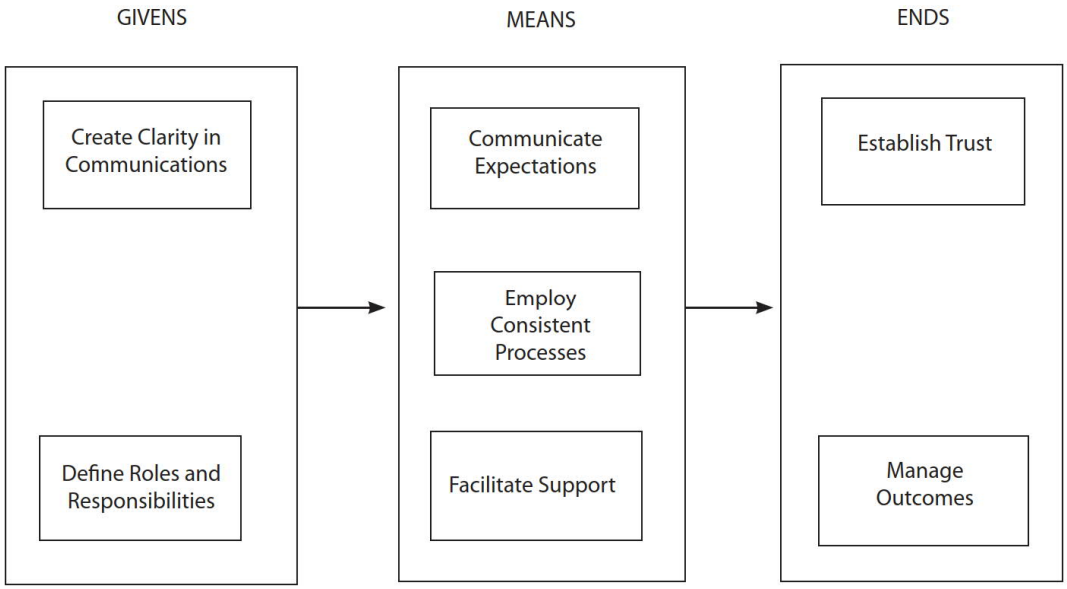

Figure 8. Project Performance Model (Anantatmula, 2010: 18).

As seen from Figure 8, defining roles and responsibilities can act as an enabler and lead to trust. But if any of these factors are absence, the factor will become a barrier and project success will be harder to achieve (Anantatmula 2010: 18). These factors can be seen as the wheels of the project, if one of the wheels stops spinning it causes friction and slows down the whole project.

Defining roles and responsibilities is the first step when launching a new project and according to Anantatmula is the most important factor for the project success (2010: 18). Although defining the roles and responsibilities is not enough. Understanding of roles and responsibilities, role clarity and task ambiguity are equally important factors (Gratton et al. 2007). When roles and responsibilities are defined clearly and understood, individual team members perform independently, instead of wasting energy on debating on tasks (Gratton et al. 2007). Independent work is efficient and generally encouraged, but each individual must work towards the common project goal. Individuals should be aware how their work influences on other team members work and what other team members are expecting from each other.

According to Gratton (Gratton et al. 2007), clearly defined roles and responsibilities increase also the cooperation between individual team members and knowledge is more likely to be shared. In long term, team cooperation supports a sense of community throughout the whole organization. Anantatmula (2010: 15) presented in his study, that defining roles and responsibilities can increase organizational collaboration and trust. Strengthening organizational collaboration is something companies pursue, but it requires long-term investments in work culture and commitment from the management.

As Gratton and Anantatmula both focused on their studies on the importance of defining roles and responsibilities, Thamhain (2014: 376) also emphasized the importance of individuals abilities. The roles and responsibilities should be defined according to individuals' professional interests and abilities. In other words, for the team to function efficiently, team members must be competent to carry out assigned responsibilities.

4.1.1 Clarity in Communication

The second factor Anantatmula (2010: 18) defined in project performance model (Figure 8) is *Clarity in communication*. Clarity in project environment means defining targets and expectations clearly in the very early stage of the project. According to Anantatmula (2010: 18), clarity is an important factor in boosting teamwork and cooperation between team members. When the project target is clear, every team member has a common goal they are working towards. If for some reason, the target changes during the project, it needs to be communicated immediately by the project management, or it may affect on project schedule and overall costs. The key skill of a good project manager is the communication skills and going silent is something the project manager should never do.

(Ziek et al. 2015: 795). According to Brønn (Brønn, 2014: 77) leaders also want to be better in communicating. Occasionally delivering bad news to the project team is also a responsibility the project manager sometimes needs to face.

4.1.2 Leadership

Management is often seen as a cold, efficient and rational way to move things forward and delegate tasks. Management focuses on improving operational efficiency (Anantatmula, 2010: 13-14) and is seen as target oriented. Leadership, in other hand, is managing people by motivating, guiding and leading them towards the common goal. According to Anantatmula (2010: 13-14), an important factor of leadership is to recognize people's potential and harness that to achieve challenging organizational goals. But it is not all black and white, hard and soft. Because team members are individuals with their own preferences how they should be led, project management should be flexible and, if necessary, change its management style accordingly.

Managing a project is not always enough. When project teams become more complex and consist of individuals with different backgrounds and areas of expertise, this group of people also needs to be led. Leaders should always be active and build trust by setting an example (Williams, 2006: 13-14). According to Thamhain (2014: 371), a good team manager needs three qualities: people skills (leadership skills), organizational structure to support him and thirdly a management style. Anantatmula (2010: 14) adds to these qualities a clearly defined project target and a cohesive project team as important factors towards project success. Both Thamhain and Anantatmula emphasized the support from the higher management. If the project does not have the support of the organization, it will reflect on motivation and performance. The manager's leadership role is essential for motivating people; therefore, manager's leadership skills should not be neglected.

According to Gratton (Gratton et al. 2007), when choosing a team leader, two kind of people stand out of the crowd: task-oriented and relationship-oriented. The first ones are good at creating clear objectives and monitoring the project. The relationship-oriented leaders are able to create an environment of trust, which encourages people to share their knowledge. Most efficient teams are usually led by a manager or a team leader who has both qualities and is able to change his management style during the project (Gratton et al. 2007). In conclusion, good leaders pay attention to relationships at the same time focusing on efficient project execution.

In complex project-oriented environments, project managers are facing three common challenges. First challenge is, that every project is unique and can seldom be even partly replicated, hence every project starts from zero. The second challenge is that the available resources are seldom ideal, and the project manager may have a very little influence on the team selection. Thirdly, team members might be also working for another project and dividing an individual's work hours between several projects can be challenging if common resource management practices have not been established.

As stated, a good project manager needs leadership skills to ensure project success. According to the relevant literature, four leadership skills can be identified. First, the project manager needs to match the right people to a right job (Thamhain, 2014: 436). This requires that the project manager knows his team members and their areas of strength and expertise. Assigned *right job* may sometimes be out of individuals comfort zone, but this can motive and encourage to professional growth. Secondly, the project manager needs to understand the roles and responsibilities of the team (Anantatmula, 2010: 15) and make sure that the roles and responsibilities are clear to everyone involved in the project. Thirdly, the project manager needs to ensure support for his team, encourage to co-creational problem solving and open communication (Anantatmula, 2010: 15). Fourth skill identified is change management. In projects there are very high chance that something is going to change, questions are when, what and how much. Project manager needs to use his leadership skills to convince people about the need of change (Anantatmula, 2010: 19) and motivate them, in some cases, to redo everything. It is important to present changes in a way that resistance and negativity are avoided.

4.1.3 Team size

As the team sizes grow and projects involve more and more people the team will be more difficult to manage and according to Gratton (Gratton et al. 2007), "as the size of a team increases beyond 20 members, the tendency to collaborate naturally decreases". Large project team with unclear roles and responsibilities, is unlikely to succeed. Large project teams may have team members operating from another location, which may lead to a situation where the team members never meet each other face-to-face. Thamhain suggested that in all projects, a project chart should be created to define reporting and authority relationships (Thamhain, 2014: 435). Existing project chart will also help new team members to understand the project organization and who to contact on a specific topic.

4.2 Communication

The general definition for communication is sending and receiving messages. If the receiver understands the received message, the communication can be interpreted as successful. If the message reaches the right receiver at the right time and the message is understood, it can be said that the communication was a great success. In its simplest, communication consists of three parts: sender, receiver and message, but all of these three have to be clear fort the communication to succeed. Spaho (2012: 311) would add feedback as “the lifeline” of effective communication. Without feedback, the sender cannot be sure if the message has been received and understood as the way the sender meant it to.

Complex multibranch projects require constant active communication, and the amount information received and sent on daily bases is massive. That is why it is impossible for everyone involved with the project to know everything (Butt et al. 2016: 1582). For the right team member to receive the correct relevant information, roles and responsibilities within the project team, must be clearly defined.

4.2.1 Face-to-Face

Face-to-face communication is considered to be the most effective form of internal communications and most preferable by most people (Farrant, 2003: 50). In face-to-face communication individuals are able to make sure they understood each other and read each other’s expressions and emotions. According to Mishra (Mishra et al. 2014: 187) face-to-face communication provides greater information and is considered reliable. Effective face-to-face communication also gives project managers an opportunity to listen and receive non-verbal signals.

Face-to-face discussion in the work environment can be either formal or informal (Butt et al. 2016: 1582-1583; Ying et al. 2014: 46). Formal communication happens usually in official meetings and informative emails. Informal communication happens personally by chatting face-to-face in the hallway or through private skype-discussion. Informal communication creates trust between team members (Butt et al. 2016:1582-1583) but can also lead to gossip.

In projects, the most common face-to-face situations are team briefings or project meetings, where information is shared and received. Information shared in face-to-face meetings gets an immediate feedback, when email announcement may get none. In face-to-face meetings, team members have an opportunity to present questions and the project manager has an opportunity to motivate and support his team. While emails and intranets are growing part of organizational internal communication, they can act as support to team briefings (Farrant, 2003: 57). With face-to-face meetings and emails, information giving, and discussions can be separated from each other's. As Davenport noted (as cited in: Farrant, 2003: 57) "a manager can e-mail it out to his or her team before the meeting, 'We are going to talk about this and this. Look at this on the intranet.'". Correspondingly after the face-to-face meeting, people who were not able to attend, may get an email including the highlights of the briefing and who to contact for more information. In any case, it should be ensured that all team members receive the information shared in the face-to-face meeting, weather they were present at the meeting or not.

4.2.2 Trust, Support and Feedback

Organizational transparency and open communication are key factors for building trust in organization (Anantatmula, 2010: 16). Trust in organization supports the employee satisfaction and motivation (Ozyilmaz, 2018: 186). Employees should have trust on managerial decisions, for their own work and their colleagues. Trust is essential when individuals are working together for a common goal. Individual team members have to be able to trust their co-workers to do their responsibilities. As presented previously in Figure 8, trust is an end result that can be accomplished if other factors of the project performance model are in place. Trust cannot be established without organizational investments in transparency and communication. Organizations need to be trusted by their employees but more important is that the project manager also needs to trust his team members. According to Anantatmula (2010: 19) trust leads to "collaboration and teamwork". In certain work fields, there are situations where an individual's life is literally in the hands of his co-worker, importance of two-way trust is crucial.

Support from top down, from down to top as well as horizontally are equally important. Project managers need the support from the organization (Anantatmula, 2010: 19), team members need support from their project manager, organization and other team members. Support system ensures that problems encountered will be solved in co-creation, which reinforces the cohesion of the project team.

Feedback is necessary for the team members so they can develop professionally. With constructive feedback team members are able to develop their strengths and weaknesses (Buron et al. 2007: 7). Feedback is also essential for everyday communication, so parties can make sure they have understood each other. According to Loerzel and Buron (Loerzel, 2019: 3; Buron et al. 2007: 9) feedback should be given as soon as possible. The lack of feedback in larger projects, with individuals from different backgrounds, may lead to contradicting interpretations (Butt et al. 2016: 1583). If the project manager is not capable of spontaneously giving feedback, the project team member must learn to ask for it. Uncertainty of the quality of individuals own work, may reduce trust and motivation.

4.2.3 Motivation

Motivated employees enjoy work and do their work for the greater good of the company. Motivated employees feel like they have their professional needs fulfilled (Thamhain, 2014: 371) and are genuinely interested on their work. According to Clark (Clark et al. 2019), 40% of projects succeed, because of motivated team members. Motivation can be extrinsic motivation, such as money or group pressure, or it can be intrinsic motivation when the work itself is naturally satisfying.

The reasons why employees feel unmotivated can be divided into four categories: *Values mismatch, Lack of self-efficacy, Disruptive emotions* and *Attribution errors* (Clark et al. 2019). *Values mismatch* when employee does not care enough to do the task (Clark et al. 2019). This may be a result if the task is not intellectually challenging enough, or the employee feels like the task is irrelevant. *Lack of self-efficacy* is closely related to employee's self-esteem. The employee feels like he is incapable of performing the task or do not get the needed support (Clark et al. 2019). This type of motivational block prevents the employee to work on the assigned task. *Disruptive emotions* are a motivational block that usually arise from employee's personal life, such as anxiety or depression (Clark et al. 2019). Disruptive emotions can also be a result of workplace conflicts or general bad atmosphere and reflect to the whole wellbeing of the employee. In *Attribution errors* the employee might be unable to identify the reason why they are struggling with a certain task. According to Clark (Clark et al. 2019) attribution errors van be seen in workplaces as calling in sick or avoiding that certain task by "being too busy".

Both Clark and Thamhain (Clark et al. 2019, 2014: 375) have created a set of tools for project managers to tackle motivation blocks and to facilitate professional satisfaction. The main error project managers do, is assuming that same things motivate everybody (Clark et al. 2019). Thamhain (2014: 375) recommends the project managers to visibly give recognition of individual and team accomplishments. The organizational support system should also give employees an opportunity to career counselling and professional development (Thamhain, 2014: 375) and competence (Clark et al. 2019). Employees self-esteem can be supported by giving the employee gradually more challenging tasks or dividing the task to smaller areas (Clark et al. 2019). Because every team member is an individual, the motivational challenges and how they respond to motivational tools differ. The longer the project, the better opportunity the project manager has to get to know his team and find the right motivational tools to ensure project success. This requires project managers constant monitoring and listening to the non-verbal and verbal messages of the team.

4.2.4 Engagement

Internal open communication creates work culture that is transparent and according to Mishra (Mishra et al. 2014: 183) it also engages employees to the organization values and strategy. Open communication with active information sharing, gives employees a feeling of belonging (Mishra et al. 2014: 197). Engaged employees talk positively about the organization, work hard to help it perform better and remain even through harder times (Mishra et al. 2014: 183). Engaged employees are also recognized to have a higher level of job satisfaction (Whittington et al. 2017: 2). To engage employees from the very first day to the company, employees need to be oriented well, given opportunities to develop as professional, and managers need to take time to listen to employees' concerns (Mishra et al. 2014: 188). According to Saks (as cited in: Mishra et al. 2014: 188), employees who are supported by their supervisors are more like to be engaged to the organization.

In project environment, engagement from the early on, means whole team's involvement in the project from the day one, even though some team members input will not be needed before later on. Involvement in projects from the start helps building team's morale and commitment (Thamhain, 2014: 435). Reasons for low commitment should be defined, most commonly it is a results of employee anxiety and fear of the unknown (Thamhain, 2014: 439). Both can be influenced by team leadership.

4.3 Conceptual Framework of This Thesis

According to the findings in the current state analysis, a literature review of existing knowledge was used to find the best practices for client requirement communication practices in Rockplan**.** The literature review underlined two main topics: *Roles and responsibilities* and *Communication*.

The conceptual framework of this Thesis was used as a basis for the co-creation process of the proposal building. The key findings were connected into a conceptual framework presented in Figure 9.

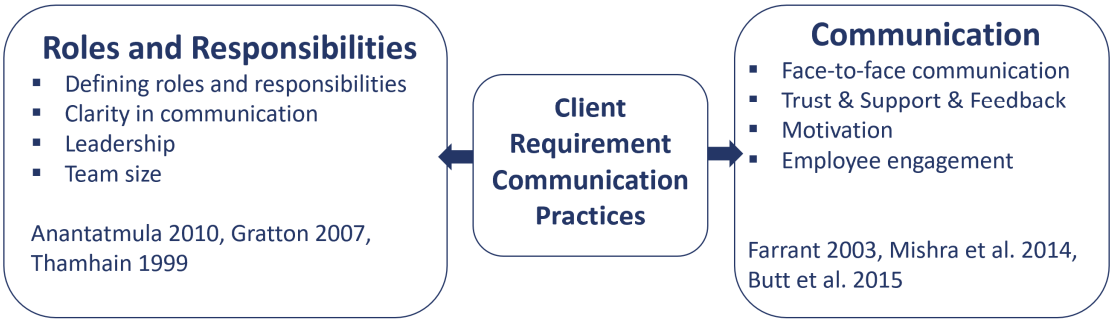

Figure 9. Conceptual framework of the existing knowledge on the client requirement communication practices.

As seen from Figure 9, the conceptual framework was divided into two main topics. Both main topics have several sub-topics that support the main topic.

The first main topic *Roles and responsibilities* focuses on the structure of the organization and project teams, it defines the key elements for functional organization and team. These key elements support the organization and project teams when communicating outside of the office to clients and partners. As presented in the current state analysis, the bottlenecks were recognized in the unclear roles and responsibilities and therefore determining of the client requirement communication practices need to start from defining the roles and responsibilities.

The second main topic *Communication* presents methods for achieving an efficient information flow from the client to the back-office. This requires support functions as engaging and motivating the project team members and constant feedback from the project managers.

In summary, efficient communication inside a company and outside of the company requires efficient communication methods. The organizational structure and roles and responsibilities need to be defined in a way that they support this communication. In the next Section, the findings from the current state analysis and the conceptual framework are used in the co-creational proposal building for creating client requirement communication practices for Rockplan.

5 Building Proposal for Rockplan Client Requirement Communication Practices

This section focuses on building an initial proposal by using the results from the current state analysis and best practices based on existing literature and established through conceptual framework. The objective is to propose improvements to internal organizational communication which builds the basis for efficient client requirement communication practices. This initial proposal is conducted in co-creation with Rockplan stakeholders presenting various branches. This section is divided in three subsections. Subsections 5.1 and 5.2 describe the proposal building and subsection 5.3 presents the initial proposal. The goal of this section is to reach the objective of this Thesis.

5.1 Overview of the Proposal Building Stage

The current state analysis revealed that the weaknesses recognized can be divided under two main categories: *Unclear roles and responsibilities* and *Communication*. Best practice found from the literature recommended to support efficient communication and for defining roles and responsibilities in projects. First, this section focuses improving the current practices how the roles and responsibilities are defined in Rockplan. Second focus point is to improve the organizational internal communication. Based on these improvements, the client requirement communication practices can be created for Rockplan and the objective of this Thesis can be reached.

The initial improvement proposal was co-created together with Rockplan stakeholders in workshop for Data 2. The proposal building was conducted in five steps. First, the improvement proposal discussed how the roles and responsibilities should be defined in projects. Second, the improvement proposal discussed how a project team should be led and the importance of leadership. Third, the improvement proposal discussed how the project team members can be engaged and motivated. Fourth, the improvement proposal discussed trust, support and feedback. The final fifth step of the improvement proposal discussed the differences of formal and informal communication.

The proposal building was conducted in co-creation with stakeholders, who represented four different branches. The objective was to discuss possible solutions to the weak-

nesses recognized in the current state analysis. Data 2 collected was based on the findings of Data 1, the current state analysis, and the conceptual framework created for this Thesis. The findings are discussed in the following sections.

5.2 Findings of Data Collection 2

Workshop 2, for Data 2 was conducted in co-creation with stakeholders that are actively involved in company projects. The objective of the workshop was to co-create ideas for improvements. The stakeholders presented four different branches, but also different nodes of the information chain. Some of the stakeholders work at the back-office and some are in daily contact with clients. This diverse group of stakeholders presented a wide opinion range and had ideas on what could be the most suitable improvement solutions for Rockplan and how they should be implemented in to the company's daily actions. The findings of current state analysis, relevant literature and Data 2 are listed in Table 3 and presented in the following sections.

Table 2. Findings from Current State Analysis, Relevant Literature and Data 2.

CSA Data 1	Relevant Literature	Workshop Data 2
Unclear Roles and Responsibilities		
Designers must step in, if project manager do not reply to a client Project managers are out of the office/unavailable Many decisions are waiting for the Project manager People who are not part of the project, get involved	Clearly defined roles and responsibilities as the first step in project Leadership to achieve challenging goals Team size <20	Involve people to the project from early on Define roles and responsibilities in the start meeting, create and maintain a responsibility chart Minimum of two client contact persons in every project
Communication Challenges		
Project managers are not always present at project meetings Project managers forget to pass on the information Too much information gets build up behind one person Designers do not get feedback	Internal project meetings create valuable face-to-face time Motivation and employee engagement Clear roles and responsibilities Visibly give recognition of individual and team accomplishments Ask for feedback.	Weekly/monthly project meetings with time for feedback and questions Project coordinator or clearly defined information path. Check list for tasks: all necessary data, clear deadline and clear instructions Support and courage, people are allowed to make mistakes

5.3 Defining Roles and Responsibilities

As for defining *Clear roles and responsibilities* in Rockplan, several improvements were proposed. These improvement ideas are presented in Figure 10 below.

Figure 10. Defining clear roles and responsibilities.

As shown in Figure 10, multiple improvement ideas were proposed in order to define clear roles and responsibilities. Ideas from the relevant literature and stakeholder suggestions from workshop, proved to be quite similar and did not contradict each other.

First, the relevant literature emphasized the importance of clearly defined roles and responsibilities and Data 2 indicated that the team members wanted to be involved in the project from the start and not to be suddenly pulled in to extinguish the biggest fires. Early involvement to the project means that when the project is launched, the project team is assembled in full at the start meeting. Even if the team members input is not needed until later in the project, the information how the project progresses and any changes in the schedule help to facilitate resource management. Even if people are considered as a standby or substitute, they should be informed about it, so they will not be surprised if they are needed. The early involvement ensures that team members are aware of the state of the project and are ready to step in when their input is needed. As the start meeting gives the project a direction and create the basis for the work culture, enough time should be reserved, and the importance should be emphasized.

Second, roles and responsibilities should be defined in the start meeting, when all team members are present. When roles and responsibilities are discussed in a face-to-face

meeting, the team members have an opportunity to ask questions if they need more detailed definitions. Defined roles and responsibilities should be listed in a responsibility chart and the responsibility chart should be maintained if any changes in roles or responsibilities occur. There should also be a defined person whose responsibility it is to maintain the responsibility chart. The benefits of the responsibility chart are evident when new team members join the project after the project has already started. The responsibility chart facilitates the introduction of a new team member.

Third, projects need management and leadership. Leaders need to be available to provide support and to encourage problem solving and efficient communication. Project managers need to be present at project meetings in order to give instructions and feedback. The project team needs confirmation from the project manager that they are taking the project to the right direction.

Fourth, it is important to the clients and cooperative companies that they know who they should contact and that they get response within a reasonable time. To prevent information building up behind one person, at least two contact persons should be defined for a project. This would mean that every time the client contacts someone in Rockplan, he would target the email to at least two predefined persons. In the start meeting should also be defined how the information and requirements are then passed on to the back-office. Task assigning within projects is discussed in more detail in section 5.2. If the project team is small and consist under five persons, it may be reasonable to consider if all team members are involved in the email chain.

Fifth, in the start meeting, the overall goal of the project should be clearly defined. Project manager needs to inform the project team clearly what is ordered, and what the client is expecting as the result. The overall project schedule should be presented in the starting meeting with an opportunity to team members to comment if it is realistic and doable. It is better to inform the client immediately if the schedule needs to be altered than deliver late.

5.4 Improving Organizational Communication

As for improving organizational communication in Rockplan, several improvements were proposed. These improvement ideas are presented in Figure 11 below. These improvement ideas support openness, transparency and facilitate information flow. Improving the organizational communication requires that every employee in Rockplan embrace new suggestions in their daily operations. By improving the organizational communication, engaging people in the change, over time, proposals can become practices.

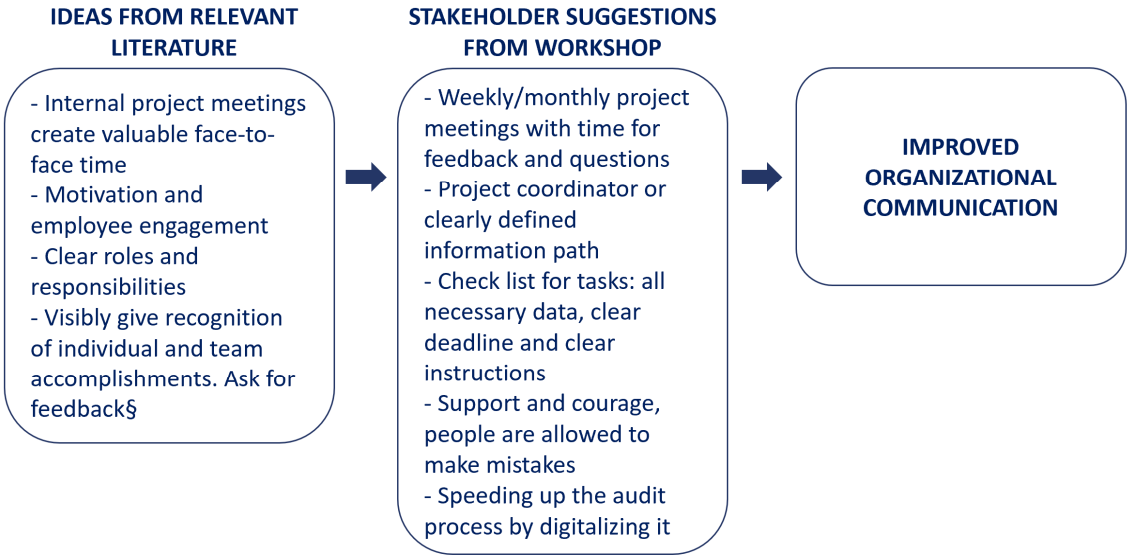

Figure 11. Improving organizational communication.

As shown in Figure 11, multiple improvement ideas were proposed in order to improve organizational communication. Even though these suggestions focus in improving the communication inside the company, good organizational communication practices will reflect also outside to the clients and cooperative companies. With clear roles and responsibilities, efficient communication and clear path of information flow, the client requirement communication practices are natural continuity to fluent communication.

First, internal project meetings create valuable face-to-face time. Weekly or monthly project meetings should not only be focused on assigning task and managing the objectives of the project, it is also a platform for open discussion and feedback. This open feedback and discussion time should be reserved for every project meeting, instead of rushing into work. Even though in project-oriented work, the sense of urgency is a common feel, there should always be time to listen team members concerns. This valuable time taken for

discussion can prevent the emergence of negative emotions and help maintaining motivation. If a project proceeds slowly, monthly project meetings can be the right pace. Active and demanding projects should have a project meeting from every two weeks to once a week. The pace of the project meetings should be defined on a project-by-project basis, but the pace may vary according to the progress of the project.

Second, it was suggested that every project should have a project coordinator who would have the main responsibility of passing on information within the back-office. Project coordinator would act as a link between the client and the back-office, while project manager could focus more on managing the project and leading the project team. If a project will not have a project coordinator or the project coordinator is absent, in any case, every project should have a defined information path that ensures that the information reaches all relevant people. Currently the information is passed on by email or verbally, but the company objective is to reduce email traffic inside the company and transfer project communication to a web-based application. By moving internal communication to an application, email would then only work as a communication tool transferring information in and out of the office. This custom application will also work as a project log, where changes and tasks are traceable.

Third, the stakeholders suggested that there should be a check list for assigning tasks. This check list would assure that the designers and drawers get all the necessary information they need to proceed with the task. According to Data 2, this check list should contain a point to at least following questions. First, does the task have all necessary start data, for example space requirements, measures or needed profiles. Who is the contact person, if more start data is needed? Second, when the task should be finished and is the schedule realistic? Is the project manager's workload estimate coinciding with the designers estimate? Third, what should be the end result? A draft or an implementation plan, what should be the scale, size and format of the design. Fourth, to who should this be delivered, what kind of auditing process does this have? These questions might be something that project manager thinks are clear to team members, so the responsibility remains with the listener to ask for more information and ensure they are able to perform their work. As well as the project managers have the responsibility to assign and instruct tasks, the team member have the responsibility to speak aloud if he or she is unable to perform the task.

Fourth, the stakeholders suggested that organizational communication can be improved by creating an environment of trust where people are allowed to make mistakes. By growing team spirit and motivation, the team members act as a support to each other. With the trust from management, the team members have an opportunity to develop their professional skills and step out of their comfort zone. This requires that the organizational culture encourages open communication and development. Support and courage are elements that the project manager creates with leadership skills and through example. Project meetings where the team members are in the same space is a place where trust and courage can be promoted through open communication.

Fifth, design audit process can be speed up by digitalizing the audit process. When designs are ready for internal auditing process, the pdf versions of the designs can be uploaded to a digital application. The project manager gets a notification on uploaded designs. The project manager can do internal auditing from any location with internet connection. The project manager can then approve or reject the design with comments. Digitalization of the design audit process will also leave an audit trail that is easily traceable. Rockplan has not yet establish a digital design audit process, but the company objective is to launch a digital design audit process after the implementation of web-based project communication application. This digitalized design audit process would reduce the amount of printed paper significantly and support sustainability.

Trust and open communication are not only something that the company management should be creating and maintaining. Efficient organizational communication also requires that the team members are open and proactive. Team members should inform their project team if they are going to be out of office or on vacation, or if they are not able to finish a task on time. The team members responsibility is to ask help and give it when needed. As pointed out in stakeholder workshop:" It's all about individual responsibility for the community".

5.5 Proposal Draft for Client Requirement Communication Practices

The current state analysis revealed that the information flow from the client to the back-office was lacking clear structure and practices. Based on the findings on relevant literature and stakeholder workshop, Data 2, initial proposal for Client Requirement Communication Practices were made. The initial proposal suggests improvements to practices

on *Start meeting, Project meeting, Project communication* and *Design audit process.* Based on the proposed improvements on current internal project practices, an initial proposal for *Client requirement communication practices* is made. These proposals are presented in Figure 12.

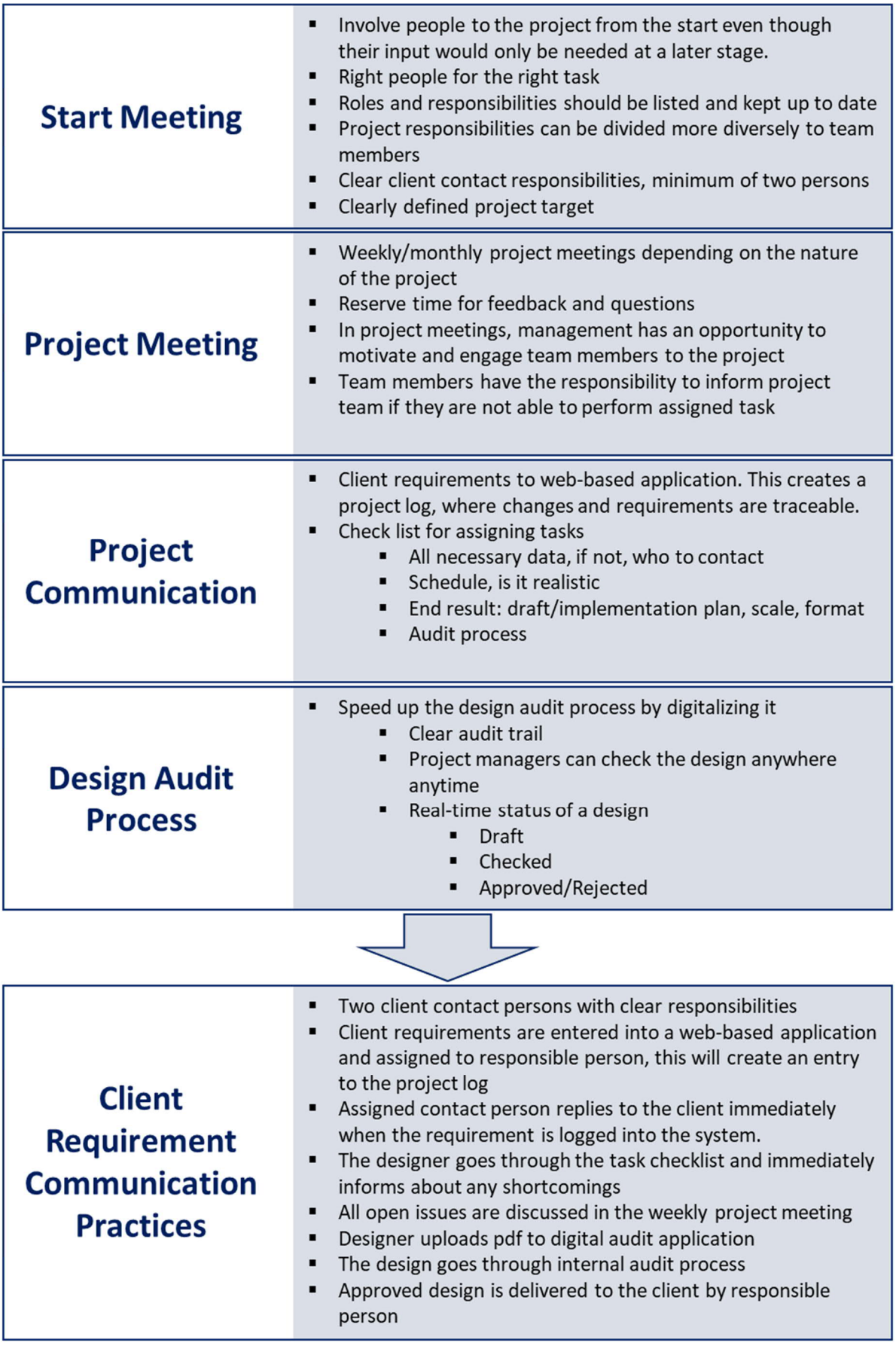

Figure 12. Initial proposal for Client Requirement Communication Practices.

As seen in Figure 12, improvements are proposed to current practices on *Start meeting, Project meeting, Project communication* and *Design audit process.* Together these four areas form the basis for project work in Rockplan. By combining the improvement elements from these four areas, the initial proposal for client requirement communication practices is made.

5.5.1 Initial Improvement Proposal for Start Meeting

The Start meeting is the point where project officially starts, and the project team is introduced to the project objectives for the first time. At the start meeting, the project manager has the opportunity to motivate and engage team members to the project and define roles and responsibilities according to project team's individual abilities. The proposed improvements for this stage include:

First, for start meeting, it is proposed to get all the team members involved to the project form early on. Previously in Rockplan, sometimes team members have been added to the project after the project is already running or the added team member was not aware that he or she would be working with that project. By knowing own involvement from the start of the project, even though input would not be needed until later stages, gives an opportunity to prepare oneself for the upcoming tasks and plan personal workload management. Adding team members to a project unexpectedly can have a domino effect on resources of other projects and have a negative impact on employee motivation.

Second improvement proposal is to assign right people for the right tasks. Meaningful tasks motivate and support professional development. It is also most profitable for a company to utilize existing knowledge in the most efficient way. If people get suitably challenging tasks while being supported by their management, their interest and motivation can support the success of the project.

Third, listing and maintaining a responsibility chart was suggested by the key stakeholders in Data 2 and relevant literature. Some Rockplan projects already utilize a responsibility chart, but the key stakeholders suggested that it should be a practice rather than a possibility. Instead of every project creating their own responsibility chart, a common template should be created.

Fourth, project responsibilities can be divided more diversely to team members. Dividing responsibilities to the team members will reduce the workload of project managers, leaving them more time for guiding and instructing team members. By giving the team members more responsibilities, they are more engaged to the project and the success of the project becomes the responsibility of the whole team, not just the responsibility of the project manager.

Fifth, in every project there should be appointed at least two client contact persons who would have the responsibility to respond to the client and communicating the requirements and questions to the back-office. The responsibilities can be divided between these two contact persons, one being the principal contact person and other would act as a standby. By appointing at least two persons, is ensured that the information is not going to build up just behind one person.

The last improvement proposal for the Start meeting is to clearly define the project target, including these points: *What has been agreed with the client, what is the expected outcome and schedule. What is the level of the designs and how much resources should be reserved immediately and how much resources will be needed later in the project.*

5.5.2 Initial Improvement Proposal for the Project Meeting

The Project meeting offers a problem-solving platform for the team to discuss challenges, schedules, team work and remind the project team of the common goal. The proposed improvements for this stage include:

First, every project should have regular Project meetings. The Project meetings can be held weekly or monthly depending on the nature of the project. Regular Project meetings create a sense of support and help rhythm the work of the week. If the project manager does not want to set a fixed weekly meeting, then invitation to the next Project meeting should be presented in time to allow the team members to prepare themselves for the meeting.

Second, enough time needs to be reserved for the Project meetings. If tasks are assigned in a hurry, open questions and concerns remain unsolved. Every Project meeting should have at least 10 to 15 minutes for open discussion, questions, concerns and

feedback. If team members feel like they do not get enough feedback, this is the moment where it can be asked for.

Third, the Project meetings are the platform where project managers can demonstrate their leadership skill by motivating, engaging and encouraging people. At the Project meetings, the project manager can sense the overall spirit of the team, individuals' mind-sets and proactively interact with potential challenges. In project meetings, project managers show their support for the team and guide the project in the right direction.

Fourth, in the Project meetings, team members have the responsibility to inform the team about their holidays and absences, and to ensure that others are able to continue working. Giving advance notice of holidays is also important for resourcing and project schedule. Team members must also be obligated to speak up, if they feel like they are not able to perform assigned tasks, or they are having challenges with deadlines. It is easier for management to provide assistance and support if they have time to react, rather after everything is already late.

5.5.3 Initial Improvement Proposal for the Project Communication

In the context of this Thesis, Project Communication means transferring information from a team member to another, sharing ideas and collaborative problem solving. The project communication is the essence of project work, without communication, teams struggle to achieve success in the project.

First, for reducing the company's internal email traffic, in the future the client requirements will be entered into a web-based application. This automatically creates a project log, where changes and requirements are traceable. In this web-based application, which is currently under development, the client requirements can be entered as general info posts or specifically assign to a certain team member. Further discussion can take place in the same application, which will reduce internal email traffic considerably. With fewer email coming to the project managers inbox, it is easier for them to pick up and notice requirements from the client and cooperative companies. Web-based application allows tracking tasks and makes it easier for the project managers to monitor that every task gets done.

Second, for the project communication, the key stakeholders proposed that there should be a check list for assigning tasks. This would work for the project managers before they assign tasks and for the designers when they receive a task. This allows both, the project manager and the designer, to react instantly if the task instructions are incomplete or unclear. Project manager's and designer's workload estimates do not always match, so when assigning a task, it would be good idea to discuss if the project manager's estimation is correct. It is more challenging to react to deficiencies later when most of the time given for the task has been used.

5.5.4 Initial Improvement Proposal for the Design Audit Process

Design Audit Process is a process where the created design is audited by one or two internal stakeholders and the approved design is signed and filed for later to ensure audit trail. Only after the internal audit process the created design can be delivered to the client. The proposed improvements for this stage include:

First, the main improvement proposal for the Design audit process is to digitalize it. Currently, designs are printed into papers, which need to be signed and filed. It is impossible to sign a piece of paper, if a person is not physically present. Project manager's absence from the office delays design audit process. By transferring the Design audit process into a digital application, designs can be audited anywhere, anytime and the project manager do not need to be physically present. This will presumably speed up the Design audit process. Digitalizing the Design audit process will also reduce the amount of printed paper and support sustainability. The real-time status of the design can be seen in the application and if the design is rejected, the designer will get a notification and comments. By auditing designs in application, the process leaves a mark in the audit trail. Digital audit trail is more easily reviewed than traditional pile of copies retrieved from archive.

Summing up, the initial proposal for client requirement communication practices was described shortly in Figure 11. Below, the proposal contains also the process added for the company to help in implementation of the suggested improvements.

5.5.5 Initial Proposal for Client Requirement Communication Practices Process

This Section presents the initial proposal for Client requirement communication practices in a form of process to facilitate understanding of the sequence of steps in the initial proposal. The process for the Client requirement communication practices is presented in Figure 13 below.

This initial proposal for client requirement communication practices is based on the initial improvement proposals created for *Start Meeting, Project Meeting, Project Communication* and *Design Auditing Process* as presented in previous Sections.

Creating client requirement communication practices is the objective of this Thesis, however, the initial improvement proposals needed to be implemented first to *the internal organizational communication* and to *the current project practices*. The improvements to the Client requirement communication practices in this Thesis, shown in Figures 12 and 13, can be implemented only after the improvements to organizational communication.

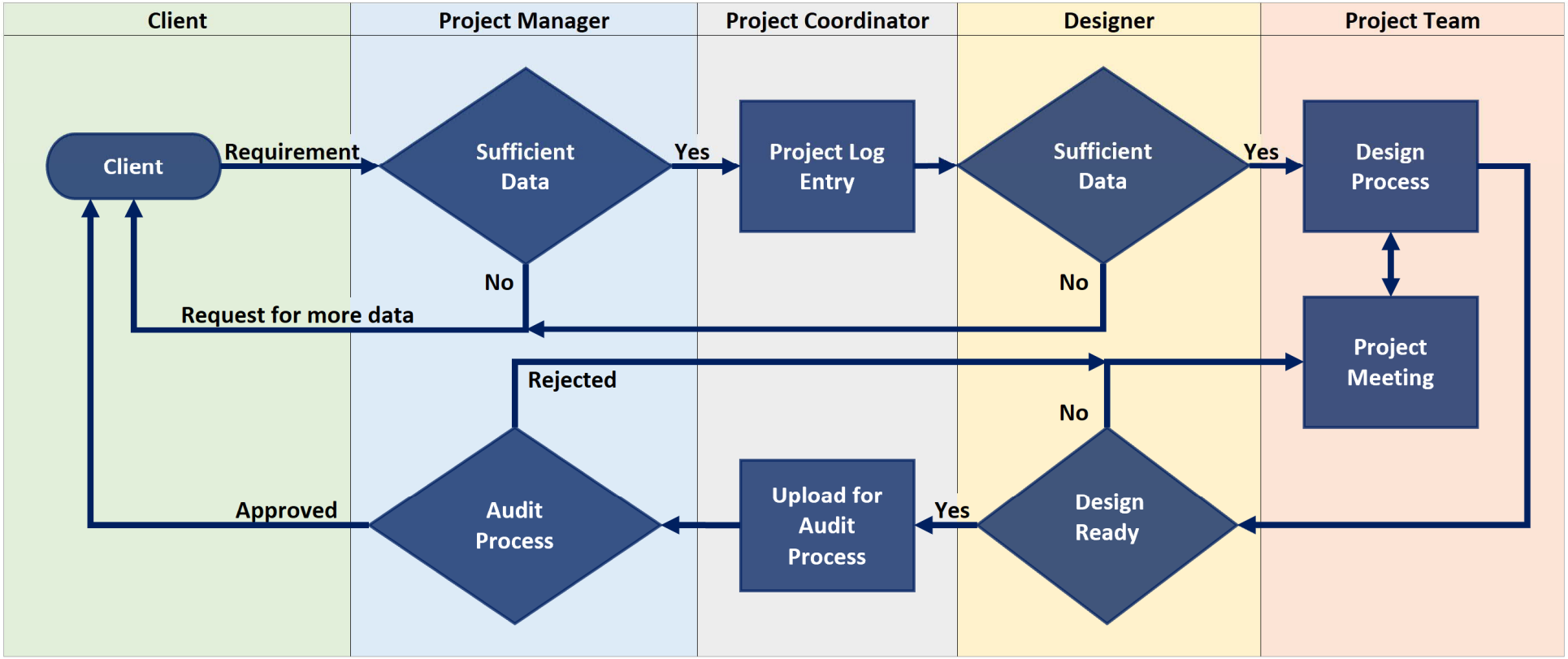

Figure 13. Process Chart of the Initial Proposal for Client Requirement Communication Practices (as a process).

As seen in Figure 12, the Client requirement communication process begins and ends with the Client.

First, the requirement comes from the Client in written or oral form, but the delivered product or service is usually a design, a solution or a document delivered electronically by email or through project bank.

Second, when the Project manager or other active team member who is assigned as a client contact person, receives a requirement, the requirement data needs to be analyzed with the help of suggested check list presented in Section 5.5.3. If the requirement is not realistic or the data is not sufficient, the requirement is returned to the client with a request for more data.

Third, if the received data is sufficient, the requirement is entered into the web-based application, where the entry makes a note to the project log. This entry is made by the Project manager or other active team member with the assigned responsibilities. The information about new requirement is then passed to the Designer or certain team members.

Fourth, after the Designer receives the information about a new requirement, he or she will then go through the check list to ensure that the requirement includes sufficient data. At this point the Designer can also comment on the workload estimate or the schedule through application. If the Designer finds the data insufficient, the requirement gets returned to the Client by the Project manager. If the data is sufficient, the Designer begins the design process. During different steps of the design process, various solution options can be discussed in project meeting to find the most suitable solution.

Fifth, when the designing process is ready, the Designer or the Project coordinator, depending on defined responsibilities, uploads the pdf-version of the design into the application. This will also create a note to the project log and begin the Design audit process.

Sixth, the Project manager gets a notification about the design waiting for internal audit and the Project manager opens the pdf on his or her own computer. This can be done anywhere where there is access to internet, which nowadays means basically anywhere when most mobile phones work as a portable Wi-Fi hotspot. The Project manager either approves the design or rejects it, both actions will create a note to the project log. If the

design is rejected the application returns the design to the design process and the comments and alternative solutions can be discussed in a project meeting. If the design is approved, it will be delivered to the client in a project-specific manner.

Next, the Thesis proceeds to validating the proposed improvements in Section 6. The proposed improvements are evaluated by the company management and key stakeholders involved in the proposal building process.

6 Validation of the Proposal

This Section reports on the validation results to the proposed improvements presented in Section 5. First, this Section describes the Data 3 collection. Second, the final proposal is built by adjusting the initial improvement proposal according to Data 3. Finally, the final proposal is presented at the end of this section with recommended steps.

6.1 Overview of the Validation Stage

Validation of proposed improvements was conducted to evaluate the proposed improvements and to gather feedback from Rockplan key stakeholders. The feedback gathered from the key stakeholders was then used to adjust the initial improvement proposal. The data gathered is later referred as Data 3.

The validation of the proposed improvements was done in two stages. First, the initial improvement proposal is adjusted according to the feedback gathered in Data 3. The objective was to provide more accurate improvements to match Rockplan needs.

Second, based on the adjusted improvements to defining the roles and responsibilities and organizational communication, the final proposal for client requirement communication practices was made.

Finally, the summary contains the final proposed improvements and after the final proposal next steps are recommended.

The validation was conducted as an evaluation and feedback workshop. In workshop 3 the initial proposals were validated together with Rockplan management and the key stakeholders who were involved in Data 1 or Data 2 workshops. The initial improvement proposals were introduced, and all proposed items were discussed in detail one by one. By inviting management, new perspective on the initial improvement proposals were obtained from an administrative point of view. Since management's support in implementing changes is important, management's presence and feedback are paramount to the future implementation of the proposals. Therefore, the presence of management was particularly important. The results of validation are discussed below and presented in five sections following the same logic as in the initial proposal.

6.2 Developments to the Proposal Based on Feedback

Based on evaluation and feedback gathered from the workshop 3, the improvements were recognized as important issues for Rockplan and well received, but their future implementation aroused concern. The main concern was about ensuring that proposals become practices.

The findings from validation (Data 3) are presented in Table 3 and discussed in more detail in following sections.

Table 3. Findings from Data 3.

Initial Proposal	Data 3 Evaluation and Feedback
Start Meeting	
Involve people to the project from the start even though their input would only be needed at a later stage. Right people for the right task Roles and responsibilities should be listed and kept up to date Project responsibilities can be divided more diversely to team members Clear client contact responsibilities, minimum of two persons Clearly defined project target	The project does not always have a clear starting point. Can be replaced by orientation. "Start meetings" also for smaller entities inside a project Team should be informed about the contract, reserved resources and available hours included in the contract. Project transparency. Guidelines for sending email: • Receiver: expected actions • Copy: For information Risks assessment should be done, and possible risks should be listed.
Project Meeting	
Weekly/monthly project meetings depending on the nature of the project Reserve time for feedback and questions In project meetings, management has an opportunity to motivate and engage team members to the project Team members have the responsibility to inform project team if they are not able to perform assigned task	Separate smaller meetings for detail level problem solving Meetings are an opportunity to learn outside own expertise Inform everyone about deadlines and changes
Project Communication	
Client requirements to web-based application. This creates a project log, where changes and requirements are traceable. Check list for assigning tasks • All necessary data, if not, who to contact • Schedule, is it realistic • End result: draft/implementation plan, scale, format • Audit process	This is good, if we get it to work. Project log is important to have in every project for possible dispute. Check list is good idea, add to the list instructions how to log hours Project task list with a two-week cycle Communicating of holidays, especially if you are absent during deadline
Design Audit Process	
Speed up the design audit process by digitalizing it • Clear audit trail • Project managers can check the design anywhere anytime • Real-time status of a design	Some like to do comments with a pen, could this work with digital pen? Clear audit trail is important It is impossible to get fully paperless, but if the official version could be stored digitally
Client Requirement Communication Practices	
Client requirements are entered into a web-based application and assigned to responsible person Assigned contact person replies to the client immediately when the requirement is logged into the system. The designer goes through the task checklist and immediately informs about any shortcomings All open issues are discussed in the project meeting Designer uploads pdf to digital audit application and the design goes through internal audit process Approved design is delivered to the client by responsible person	This is pretty simplified; the requirement is not always a clear request from the client: "do this". Sometimes it requires multiple discussions and meetings with the client and cooperative partners before decisions are made. This presents the ideal version; this is how it should work.

6.2.1 Developments to the Proposal for the Start Meeting

For improving the Start meeting practices, the developments to the initial proposals based on feedback were suggested, namely: *the possibility of replacing start meeting with proper orientation, having a new start meeting for smaller entities inside a project, ensuring project transparency by going through the contract, reserved resources and available hours, risk assessment* and *determining email practices.*

The revised proposal is presented in Figure 14. The changes made to the initial proposal are marked in bold.

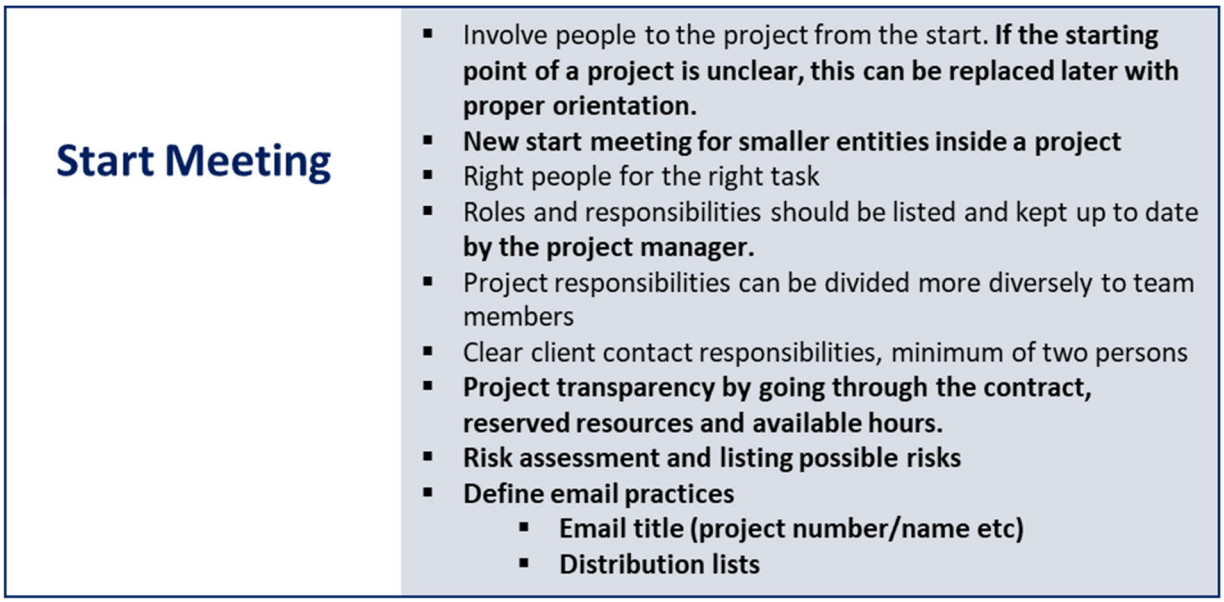

Figure 14. Developments to improving the Start meeting practices (based on feedback).

As illustrated in Figure 14 the revised parts suggested the following developments:

First, *Replacing start meeting with proper orientation* should be a possibility if the starting point of a project is unclear and the project grows slowly to its final form. Some Rockplan projects start small and expand as new orders are attached to an existing one. This makes it impossible to include all possible team members from the start. In the situations where a new team member is added to an existing project, proper orientation needs to be held that includes all the same information as a start meeting would.

Second, *New start meetings for smaller entities inside a project,* was added to the list, because additional orders for an existing project require similar initial review and orientation as the projects themselves. Entities may have a separate contract and standards and hour logging may differ from others.

Third, the Start meetings were considered to be very important for supporting *project transparency.* For achieving project transparency in the start meeting, the project team should have access to the contract in all its details, and the reserved resources and available working hours should be openly discussed in the start meeting. Team members should also be aware of the possible risks in the project.

Therefore, *risk assessment and listing possible risks* should be done in cooperation in the start meeting. Risk assessment and listing possible risks is self-evident in many Rockplan projects and requirement in the quality system, but the Data 3 suggested that it should be included in a start meeting template. If the risk assessment is included in the start meeting template, it will more certainly be dealt at the start meeting and not later in the project.

Next, *Defining email practices* is a crucial part of project communication, but it is listed under the practices of start meeting, as these practices need to be defined at the very early stage. Project managers who work with several projects, receive hundreds of emails on daily bases.

Therefore, a clear email title that refers to a specific project, makes it easier for a project manager to screen through and return to a specific email later. It was suggested that email titles should always start with a project number or a project name. It would be desirable if the client and cooperative companies would use same principle on their email titles, which means that email practices need to be agreed on a project basis. In addition to email practices, pre-defined emailing lists were added to the list by a request to ensure that information always reaches the agreed parties.

Overall, the management and key stakeholders considered the Start meeting and the information it should include, to be one the most important things in projects. Rockplan project managers must ensure that the Start meeting is properly held, and the project team is well informed about the project goals.

6.2.2 Developments to the Proposal for the Project Meeting

For improving project meeting practices, the developments to the initial proposals based on feedback were suggested, namely: *separate smaller meetings for detail level problem solving.*

The revised proposal is presented in Figure 15. The change made to the initial proposal is marked in bold.

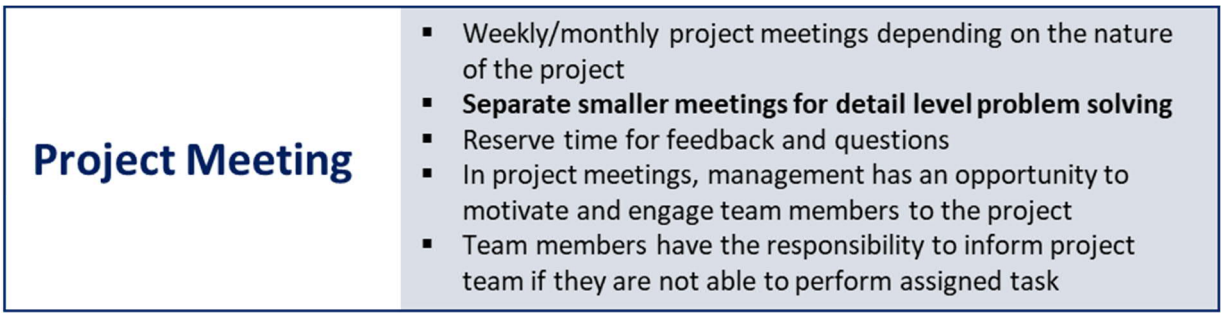

Figure 15. Developments to improving the Project meeting practices (based on feedback).

As presented in Figure 15, according to Data 3 feedback, only one addition was made:

Some of the stakeholders were concerned that the Project meeting would include too detail level problem solving and suggested that *separate smaller meetings* would be held for detail level problem solving. It was argued that detail level problem solving in project meetings would offer other team members an opportunity to learn outside their own expertise. It was finally agreed that the content of weekly/monthly project meeting would remain in general level and additional separate meetings could be held as needed.

6.2.3 Developments to the Proposal for Project Communication

For improving project communication, the developments to the initial proposals based on feedback were suggested, namely: *Instruction on how to log hours* and *Project task list with a two-week cycle.*

The revised proposal is presented in Figure 16. The changes made to the initial proposal is marked in bold.

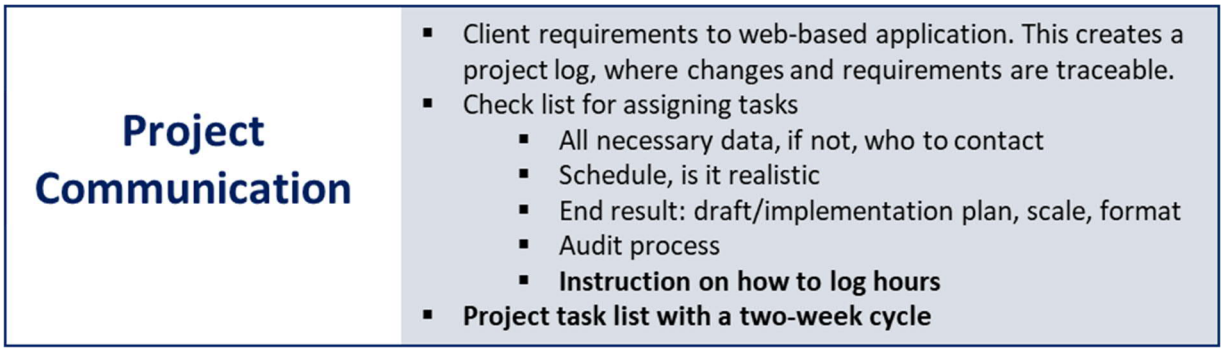

Figure 16. Developments to improving project communication (based on feedback).

As illustrated in Figure 16, the revised parts suggested the following developments:

Firs an amendment to the task assigning check list. It was suggested that the check list should also contain *instructions on how to log hours* so that they can be monitored, checked and invoiced correctly.

Second, the project managers should maintain a *project task list with two-week cycle.* This list would include all the tasks of that specific project that need to be done during the period of following two weeks. This would be updated as tasks are completed. Some projects are currently having a task list including all tasks, but according to the feedback, smaller sections are easier for the project team to perceive. This aroused a debate, some stakeholders felt that a task list would be inconvenient to maintain and requires unreasonable time from the project managers. The project task list was added to the final proposal, as it was felt that in an ideal situation, these task lists would work and in practice they could support the project to stay on schedule.

6.2.4 Developments to the Proposal for the Design Audit Process

For improving the Design Audit Process, the final proposal is presented in Figure 17 below.

Figure 17. Developments to Improving the Design audit process (based on feedback).

As seen in Figure 17, nothing was changed at this stage according to Data 3 feedback. The digitalized Design audit process is currently in the development stage, and the management expectations for it are high. Only concerns were about the design audit steps, if there should be added more steps or if it should be simplified. Some project managers also like to mark their comments to a print with a pen, so the stakeholders hoped that upcoming Design audit process would support digital pens. The management and key stakeholders were skeptical that the digitalized Design audit process would completely replace prints, but at least the amount of archived copies could be significantly reduced. It was also discussed whether the application would also support auditing large BIM-files (Building Information Model), as the company is increasingly moving towards model-based designing. Development of the digitalized Design audit process will continue outside this Thesis and it is estimated that the digital Design audit process will be presented later this year.

6.2.5 Developments to the Proposal for Client Requirement Communication Practices

For client requirement communication practices, the final proposal is presented in Figure 18 below.

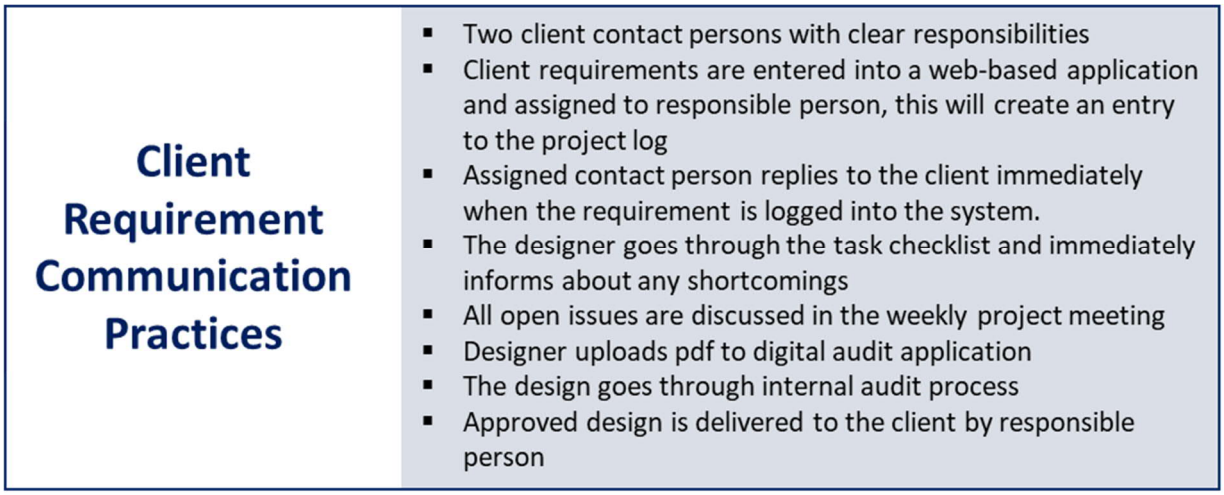

Figure 18. Developments to improving the proposal for Client requirement communication practices (based on feedback).

As seen in Figure 18, nothing was changed at this stage according to Data 3 feedback. The simplicity of the proposed practices aroused discussion, because according to the feedback, the requirement is not always a clear request from the client. It was also discussed, that the presented proposed practices start after the requirement is confirmed. Receiving a confirmed requirement can be preceded by weeks of discussion with the client and cooperative companies. Data 3 evaluated presented practices as clear and ideal presentation how the process should go, and the management estimated that these practices could be implemented after the development of the web-based application is ready.

6.3 Summary of the Final Proposal

Final proposals for improving organizational communication and current project practices are presented in Figure 19. Final proposal for client requirement communication practices is the same as initial proposal, but before implementing the proposed client requirement communication practices, improvement proposals for practices on *Start meeting, Project meeting, Project communication* and *Design audit process* need to be implemented. These suggested improvement proposals create the basis for efficient client requirement communication and enhanced communication inside Rockplan projects.

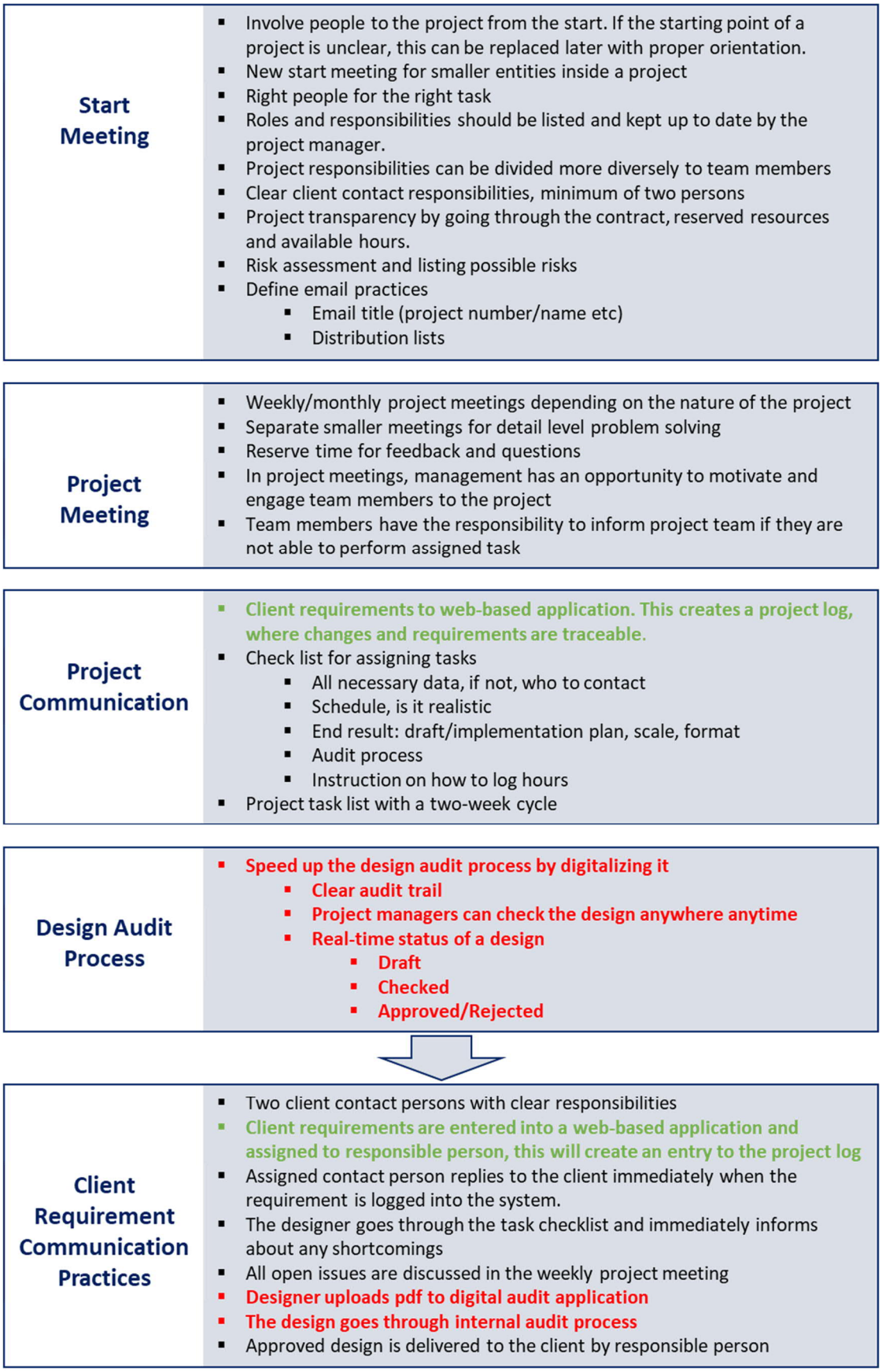

Figure 19. Final proposal for Client Requirement Communication Practices.

Figure 19 combines together Figures 15 to 18 and simultaneously presents the implementation order from top to bottom. The black text presents practices that can be implemented by the end of the year if recommended steps presented in Section 6.4 are completed. Green and red texts present practices that can be implemented after the development of application is ready. After launching the application, the implementation will happen in two stages. First, client requirements are taken into the application and the use of digital log will be utilized. Second, after a six-months test period with client requirements in the application, the design audit process will be moved into the application, one project at a time.

According to Data 3 feedback, no changes were made for the process chart of the initial proposal for Client requirement communication practices. The discussion focused on the step before receiving the Client requirement, and since the requirement never comes in the same way, the step was not added to the process chart.

Next Section presents the recommended steps that should be taken before implementation.

6.4 Recommended Steps

As for the first step, *a Start meeting template* should be created to be used as an action list for start meetings. By filling the template can be assured that recommended topics have been reviewed.

Second, *a template for responsibility chart* should be created to facilitate and speed up the defining of roles and responsibilities. The responsibility chart should include the most common responsibilities and predefined project management responsibilities.

Third, *a template for risk assessment* and most common *project risks* should be created to be filled in the start meeting. These listed recommendations create a comprehensive package to start a project with. Templates ensure that all projects produce documents in the same way to consolidate the company's internal project processes.

Next Section summarizes the Thesis and evaluates the credibility of the data and used research methods.

7 Conclusions

This section summarizes the findings made in this Thesis starting with an executive summary of the Thesis. Second, presents the recommended steps that should be taken before implementing proposed practices. Section ends with the evaluation of the Thesis and final words.

7.1 Executive Summary

One of the ground stones for a prosperous business is the communication with suppliers, customers and inside the company. For efficient client requirement communication practices in project-oriented companies, the company needs to have projects with clearly defined roles and responsibilities to ensure that all client requirements are answered and processed in an acceptable time frame. The company internal organizational communication needs to be in on a level where the communication is fluent, efficient and informative before any client requirement communication practices can be implemented.

The objective of this study was to create a client requirement practices for Rockplan through methods of Applied action research. The outcome of this study was proposals for improving the current project practices and client requirement communication practices that help the project managers in the future to pass on client requirements more efficiently to the back-office and designers.

This study started with the current state analysis of the current client requirement communication practices executed by conducting interviews and workshop and by analyzing the existing employee satisfaction surveys. The goal of the current state analysis was to find the strengths and weaknesses of the current way of communication client requirements. The strengths identified supported the effective collaboration between designers and drawers in the back-office. On the other hand, the current state analysis revealed that the information flow from the client to the back-office was lacking a clear structure and practices. Based on the results of the current state analysis, improvement proposals needed to be made first for *the internal organizational communication* and *the current project practices*.

To tackle the weaknesses identified in the current client requirement communication practices, best practices were searched from relevant literature and improvement proposals were co-created in the workshop with the company key stakeholders. Created proposals suggests improvements to internal project practices in the *Start meeting, Project meeting, Project communication* and *Design audit process.* Based on the proposed improvements on current internal project practices, a proposal for *the Client requirement communication practices* was made.

The proposed improvements to current project practices were validated in a feedback workshop with Rockplan management and key stakeholders. The final proposals were adjusted according to the feedback received.

By implementing the proposed improvements, Rockplan can improve their project performance and process client requirements more systematically. Importantly, the study needs to stress that the proposed client requirement communication practices can be implemented only after implementing the proposed improvements for the current organizational communication and the current project practices.

7.2 Managerial Implications

The proposed improvements to the current internal project practices and establishing client requirement communication practices call for further practical steps before implementation into daily project work. In order to implement proposed improvements, Rockplan should create a comprehensive action plan which defines the persons who are responsible for the implementation of the proposals. The recommended steps are presented below.

First, the current organizational communication and the current project practices should be improved by implementing the improvement proposals for *the Start meeting* and *the Project meeting.* These improvements support open discussion and enable the information flow in project meetings through efficient leadership. If the project managers feel that their leadership skills are inadequate, Rockplan should provide the project managers an opportunity to develop their leadership skills for example though courses.

Second, a more detailed implementation plan needs to be made for implementing the web-based application for the client requirements, which should include the implementation order of projects and schedule. The first part of the web-based application for the client requirements should be piloted with a small project, with technically oriented team members. During this pilot stage, changes can still be made to the application according to the pilot team feedback.

Third, the first part of the web-based application should be implemented with orientation and support. The client requirements are taken into the application and the use of digital log will be utilized. This implementation should start with a small project and new projects would be included one at a time to make sure the project team members are thoroughly oriented. Enough time should be reserved for this transition period to ensure everything work as planned.

Finally, after the transition period, the second part of the web-based application should be implanted with orientation and support. The Design audit process should be digitalized and moved to the application. The implementation should be conducted the same way as the implementation for the first part of the application and should start with a small project and a pilot test, followed with a transition period.

7.3 Thesis Evaluation

The evaluation for this Thesis is based on four research quality criteria to ensure credibility and quality of the results of this Thesis. These four criteria are *validity, reliability, logic* and *relevance*.

Validity in qualitative research can be determined in several ways (Golafshani, 2003: 602). In general terms, validity is used to determine if the research was conducted with correct methods and how valid the results are. Yin (2009: 42) presents three tactics how to construct validity. These tactics are to use multiple sources of evidence, establish a chain of evidence and to have key informants to review the study.

In this Thesis, validity was ensured by triangulating the multiple sources and methods for data collection. Chain of evidence has been ensured by documenting the collected data as field notes and reporting the data analysis in detail. The results of this study were

presented to the key stakeholders and they had an opportunity to review and give feedback. The whole research process and methods have been discussed openly in Rockplan.

Reliability requires that the study can be conducted again by following the same procedures and the outcome of the study should be the same. This helps the researcher to minimize errors and encourages accurate reporting of the research (Yin, 2009: 45). If the validity of the study has been ensured, then the reliability and trustworthiness should be a logical continuity. In this study, the reliability has been ensured by transparency, open discussion and well documented field notes and properly marked sources. All research data is saved to company servers were everyone in the company has access to, although names and locations mentioned in the interviews were censored to maintain immunity.

Logic, also known as internal validation, answers the question if the research was done in the right logical way. In this study, the logic was ensured with a research process planned in advance. The research process was determined before the data collection and the study followed the research process through the whole study. The research process started with identifying a business challenge and an objective. The objective was the center of this study. After determining the research process, the current state analysis was conducted. The results of the current state analysis determined the areas where existing knowledge and best practices were search from literature. The proposal for the new client requirement practices were co-created with key stakeholders. At the end, Thesis was evaluated by the management and the key stakeholders of Rockplan.

In this study *Relevance* was ensured by choosing a business challenge that reflects to every day actions of the Rockplan. The conducted current state analysis also presented the urgency and need for improvements in the current client requirement communication practices. The proposed client requirement communication practices are determined according to the needs of Rockplan to enhance the information flow from the client to the back-office and to reduce bottlenecks.

7.4 Closing Words

Before establishing client requirement communication practices the cornerstones of organizational communication need to be in order. In cooperation with Rockplan stakeholders, the weaknesses were discovered, and improvement proposals were made to ensure effective project performance and client requirement communication also in the future as the company grows and active projects multiply.

The development process continues outside this Thesis with the web-based application until it is ready to be implemented into daily project work. During this year, Rockplan's project practices will go through many changes, and the author of this study is honored to be part of the development.

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Personnel Satisfaction Survey

A survey conducted to warm up people with the upcoming development process.

1. How would you rate your own communication skills?

0	1	2	3	4	5	6	7	8	9	10

Weak Strong

2. How satisfied are you with the company's current level of project communication

0	1	2	3	4	5	6	7	8	9	10

Dissatisfied Very Satisfied

3. How satisfied are you with the internal communications of your branch?

0	1	2	3	4	5	6	7	8	9	10

Dissatisfied Very Satisfied

4. Which of the following statements do you think best describes the current level of project communication

- ○ I know exactly what is happening
- ○ I know pretty well what is happening
- ○ I know something about the project
- ○ I only know what concerns me
- ○ I don't know what is happening
- ○ Other

5.
Are you aware of the project schedule? (You can select one or more)

- [ ] I know the overall project schedule
- [ ] I know the milestone schedule
- [ ] I know the schedule of my tasks
- [ ] I know something about schedules, but I'm not sure if they concern me
- [ ] I am not aware of the project schedule
- [ ] Other

6. How important do you consider the following statements

	Extremely important	Very important	Somewhat important	Not so important	Not at all important
Project Manager's good communication skills					
Project team members understand their own tasks					
Project team members get enough information about the project					
Project team members know how to communicate and work together					
Informing about changes in the project as soon as possible					
Project team members are aware of the overall project schedule					

7. Set the following project communication channels in order of priority

- Project Meetings
- Email
- Face-to-face
- Intranet or other digital application

8. Ideal pace of project meetings

- ○ Weekly
- ○ Monthly
- ○ Only when changes occur

9. When informing about a project

- ○ I want to know only thing that concern me
- ○ I want to know the overall situation

Data 1Interview Template

1. How project information is shared in Rockplan? Who are involved, how they forward the information and how long does it take for the information to reach its destination? Is the message clear?	
2. In current communication practices, what works well? Why?	
3. What does not work/bottlenecks? Why?	
4. What are the general responsibilities of these roles?	
a. Client	
b. Project Manager	
c. Principal Designer	
d. Designer	
e. Sub-consultant	
f. Project Coordinator	
g. Design Assistant	
h. End user	
i. Contractor	
5. How do these responsibilities and roles take place in Rockplan projects?	