Structural Project Need Good Communication

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ABSTRACT

Title: Structural Project Need Good Communication

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Aim: This thesis aims to study how work breakdown structure (WBS) in project planning could be of help for the case project. Moreover, we also want to analyze if and how communication could be of help to solve delay problems by the use of WBS.

Method: This work is a case study of a real world project which is ongoing during the time of our study. In collecting data in the study we followed the same steps of the project by information updating in time. In the analysis we combine theoretical information with the one collected in our empirical study. The problems we investigate and present are based on the interviews and the discussions with the project manager. During the study, we used both interviews and questionnaire for data collection.

Result & Conclusions: During the study and discussion, we found problems existing in the case project which influenced its processes and delayed its goal achievement. In our analysis we could see how the use of WBS can be helpful to improve the communication in the project from the time of project planning to the project is implemented. WBS can be a basic guide map for project management to identify the shortest routes and right objects to communicate efficiently.

Contribution of the thesis: In our study, we made company to realize how project management need to clearly realize the importance of WBS and the relationship between the tasks identified. We suggest that project managers should find out all the possible routes in its WBS for communication and then use the shortest paths to avoid complicated communication problems. Finally, it needs to emphasize the equal position for order maker and order taker to ensure that the orders are made from mutual communication and not made from individual opinions.

Suggestion for further research: Due to the case project is ongoing and explored in communication and WBS aspects, further researcher may consider more depth about this research direction of the gap between improving communication and implementing WBS. Based on the different culture of management in different, it will be interesting to seek and show the different communication ways which are happening during a project is going by using WBS in different culture background. And there will be more can be done to seeking the better ways to combine WBS and communication within management.
Key words: Project Management, work breakdown structure, communication, project planning
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1. Introduction

The chapter consists of five parts, which are background, research question, purpose, limitation, and disposition. It introduces the concept of WBS and communication model, and general status of WBS and communication problem in the case project. It also shows the research questions and our purpose. At last, a blueprint was draw to present the structure of this thesis.

1.1 Background

Projects have become widely used to solve organizational issues and are today a common used work form in modern life (Castells, 1998). Therefore, improving competencies is necessary for most companies to handle their project. Especially important is that the communication is effective to ensure that every activity in the project is well performed.

Lock (2003) argues that a plan is always advisable for finishing a project on time. At the beginning period of the planning a project, mission motivation should be identified clearly to avoid missing direction (Meredith J.R., 1995. Work breakdown structure, WBS, is commonly seen as a useful and important tool in the planning process. Newell and Grashina (2004) point out that WBS as a planning work method is one of the most useful and basic tools in project management which can be easily used and understand. Meredith and Mantel (2006) also mention that WBS generally is an important documentation tool which can be tailored later for use in different way.

Harrison and Lock (2004) identified that ‘work breakdown structure’ as a tool could be seen as an end-item-oriented family-tree-like subdivision of project, products, deliverables, work tasks and so on, which commonly are visible on a chart. Lawson, Wearne and Lles-Smith (1999) identified that WBS is a normal and systematic tool which is particularly useful for managing a project and defining the work for contractors (Lawson, Wearne and Lles-smith, 1999). In other word, WBS as a technical instrument can be identified as a tool to break down a project into its component parts (Verzuh, 2005). To be efficient, however, it is important that the parts of WBS are communicated in the project.

WBS tool are usually used in big company’s projects. This means that small companies may not use it because of lack of resources or lack of knowledge in how use this techniques to improve how work could be performed in a more efficient way. This study concentrate on a real project performed in a Chinese small recycle company, called Litian Metal Recycle. In October 2010, the leaders of three metals recycle companies started to discuss and plan for a project to establish a multi-owned distribution center. However, with the progression of the project, more and more problems came out. The project didn’t use a structured planning method to clarify every
component of the project in relation to details and responsibilities. These were not clear for those involved in the project. Moreover, the problems also caused communication problems as the information flow was not good in and between the three companies. Except the weekly meeting, they didn’t usually contact each other to share working information. Instead everyone was working by themselves and not as a group. It usually caused many delays as the different parts of the project weren’t in the same steps because of the lack of good communication.

In research there are few articles that discuss how WBS can improve communication. Hence, this thesis will fill this gap by focusing on the ongoing project of Litian Company to find out what problems arise in accordance to communication in the planning process. From the interview of the Litian Company, we know that they have some planning process, but they do not use it in a structured way. This thesis tries to investigate whether WBS can be of help for a small company. Litian Company is used to illustrate how WBS could be used to improve communication in the company.

1.2 Research Question

1. How could WBS be of help for a small company project?
2. How can communication problems be solved by the use of WBS?

1.3 Purpose

This thesis aims to study how work breakdown structure (WBS) in project planning could be of help for the case project. Moreover, we also want to analyze if and how communication could be of help to solve delay problems by the use of WBS.

1.4 Contribution

This study shows a practical perspective of a small ongoing project and it also indicates the ways to solve the communication problems in case project by using WBS. As there are few articles discussing how communication could be improved by using WBS, we can consider our study as also a contribution to this link. “WBS”+”communication” will be our new model for project management.

1.5 Limitation

In this part, we are presenting the limitation of our thesis in relation to the chosen project, methodology, empirical study and time.
Limitation of chosen project

There are a lot of project cases going on in different China companies. Here we just mention one project which was chosen based on a previous study (Wang Y. L. & Lin S. Q, 2010). The participated companies are SMEs but these can’t represent all SMEs companies performing similar projects. The situation of the specific case companies cannot represent all similar Chinese projects and situations. It’s a case study about the specific project and all the result of our study is aimed to research the specific feature of the project. It could be claimed that the problems in the case could not be seen as general for all similar cases. Still we think there are similarities and experience from the project could be shared and useful to know for small companies in general.

Limitation of methodology

In this research, we have chosen telephone interviews with the manager, supervisor, stakeholder, and we also perform a survey sent to 15 employees working in the case project. The answer from interviews could have a problem on reliability due to that they may hide information as the informants might not want to cause bad influence by giving negative information about their companies. Despite this we have received more detailed information as this project is performed by the family of one of our researchers. However, this also cause risk on reliability as we are influenced by the company condition. Moreover, the questionnaire was finished by email and not face to face. Therefore, it is hard to guarantee that every employee has answered the questionnaire as careful as we wanted.

Limitation of empirical study

The project is an ongoing project which is held by three small sized companies without public information on internet. Therefore, the empirical study is entirely consisting of primary data which are interviews and the questionnaire. This situation can be a limitation as the study lack secondary data information to compare with empirical findings.

Time limitation

This thesis focuses on WBS and communication problems while working with the WBS as a project tool. However, with the times flying, there are a lot of changes that may occur in the project. Therefore, our angle covers the period from the beginning of the project to the latest information we received from the interviews and it cannot follow the project to its final moment.

1.5 Disposition

As figure 1.1 shown, this study is composed of six sections. Section 1 consists of the introduction which describes the background of the study, its purpose, research question and limitations. Section 2 introduces the theoretical framework of project planning, work breakdown structure and communication model. Section 3 present the
method which is referring to our approach of data collection, explain why we choose this approach and whether it suits the question. Moreover, the quality and problem of methodology is discussed. *Section 4* discusses our empirical study which shows the details and findings collected from interviews and the questionnaire of the case project. *Section 5* consists of analysis in which we discuss our empirical study and connect it with theory. Moreover, the discussion gives contribution to what to discuss in the conclusion. *Section 6* draws a conclusion and presents the result for research questions, discusses contribution and makes a suggestion for future research.

![Figure 1.1: structure of the thesis](image)
2. Theoretical Framework

This chapter has three parts which review the literature about planning, work breakdown structure and communication. First, general steps of project planning are discussed. Second, work breakdown structure is introduced in the chapter and discusses how to structure a project. Last, communication is introduced into three aspects; definition, communication model and communication in project.

2.1 General steps of project planning

At the beginning of planning a project, mission motivation, goals and method need to be clearly identified to ensure that the coming tasks have a right direction. Senior management has to delineate the firms’ intent in undertaking the project, outline the scope of the project, and describe how the project’s desired results are reinforced in the organization’s goals. Without clear plans when beginning the project the project planning can easily go astray. It is also vital for project success that senior manager need to call attention to and could be presented at the project launch meeting. Managers’ information at initial coordination meeting could by the involved team be seen as a visible symbol of top management’s commitment to the project (Meredith J. R., 2006).

In a project’s beginning period, there are six general steps suggested for project planning (Antvik, S. 2007): project objectives, scope (WBS), organization (OBS), time schedules and finally budget over expenses (PV). Project objectives give guidance for the project team in how to work in the project. They present the way the project team need to know to give the direction of work so they know if they are working towards the right goals. There are also other principles that need to be followed during the planning processes. SMART is short for specific, measurable, accepted, realistic and time limited goals which consist of five important requirements that should be followed when establishing the project objective. These goals require that a project should be planned in a precise way and that the objectives can be quantified when the project moves on or is finished. A project is formed by several person or organizations, so the objectives need to be acceptable to them in case the divergences in project processing occur and to ensure that participants are willing to serve the objectives in an efficient way (Antvik S. 2007). Generally, objectives should include profile and competitive aims as well as technical goals (Meredith J. R., 2006).

It is an important part in project planning that the scope of the project can be broken down into many individuals or units as a structure for the task to be delivered. This is named work breakdown structure (WBS) and represents a basic frame to handle the coming planning processes (Antvik S. 2007). OBS stands for Organization Breakdown Structure. In this step of the planning, the project manager states and decides the organization and staffing requirements, which requires that the personal departments take the responsibility for these tasks. OBS can be combined with WBS in project
planning which means that the outcome is an extended planning structure including such as making a linear responsibilities chart or verbal responsibility chart. It is widely used and could be helpful to clarify a whole project plan from the tasks perspective (Meredith J.R., 2006).

Time, is a necessary element in project planning as it is concerned with whole procedures of the projects part from the first beginning steps. Based on activity lists, the time schedules can be developed (Antvik S. 2007). Gantt chart is a useful tool for planning a project both on time and in accordance to activities. Budget can also be done based on WBS and set by following the matched elements in WBS. For example, in periods of one element, there are different budget requirements (Antvik S. 2007). The goal of budgeting project is to set up a plan to identify the resources needed, project’s goal, and the schedules that the organizations need for achieving their objectives (Meredith J.R., 2006).

The success of the project launch meeting is absolutely dependent on the existence of a well-defined set of objectives. Unless all parties in the planning process have a clear understanding of precisely what it is the project is expected to deliver, planning is sure to be inadequate or misguided. As mentioned above, a meeting is suggested for the discussion of details, potential contributors, common understanding (Meredith J.R., 1996) and also to vote for agreements to launch the project. There is one more important thing which is that risks should be considered during the launch meeting, so risk management plan for the project could be started at the launch meeting. Later on the coming risk identification process can be widened to include technology, project schedule, resource base and unlimited possibilities of other risks not previously identifiable until the project plan has been established. There are many different expectations for a launch meeting (Knutson, 1995), but no matter what kind of process that are being used, the outcome of the meeting should include: 1, what the technical scope is built on; 2, participants that accept responsibilities of performance in specific area of the coming project; 3, the tentative finished date or budgets should be clearly outlined by project leaders; 4, after the meeting there need to be a risk management group. A project launch meeting is important for projects to ensure that every participant agree to the arrangement and identify their roles within in the project, to that responsibilities to do what they exactly need to do as a part of the whole project. The plan of project should provide the requirements of tasks, and be of guidance for budgets and schedules (Meredith J.R., 2006).

In the planning, the most significant step is to create a work breakdown structure for the project. If projects use work breakdown structure, the coming phases can be develop based on this structure. There are more work that need to be done by using WBS such as dividing responsibility, scheduling the tasks and identifying the communication way. So, in the next part, work breakdown structure will be introduced as an important tool in project work.
2.2 Structural project

The WBS (See Figure 2.1) is widely used in project management and it usually pictures a project as built on structural units of assignments, subtask, and work responsibility to mention some. Some authors suggest that WBS can be treated as the basic tool for project planning, and there is nothing logically wrong in this method/tool (Meredith J.R., 2006). A work breakdown structure is a deliverable-oriented grouping of project element which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project component may be products or services (Ritter 2008).

![Work Breakdown Structure Diagram](NetMBA.com)

Figure 2.1: Work Breakdown Structure (Resource: NetMBA.com)

Generally, WBS is presented as a structure from top level to lower level task performance including the roles of management and elements of organization. There are suggestions that WBS is the most fundamental part of project planning (Hubbard, 1993). WBS can be formed as a combination of action plan and time plan. There are different ways to describe the WBS by terminology by for instance focus on phases, activities and level of tasks. As the figure shown above, at the top level it is the project leadership and these conducts the main direction for how the project moves on (Larson E. 1990). Top leader level is leading lower level project group and which member is occupying the tasks of the project. This level is also conducting its sub-level tasks which are dealing with the more detailed sub-tasks (Hyvari I. 2005). By summary, the description from highest Level 1 task performance shows the overall project under development, level 2 shows major project components, level 3 shows the supporting deliverables and the lowest level 4 performance shows individual project activities.
There is a general way explaining the processes for designing and tooling work breakdown structure. At the beginning, after identifying the action plan the task breakdown should be listed until all the significant tasks and work package have been recognized (Zabelle T. 2001). During this process, designers need to consider each task that can be continually operated, scheduled, monitored and controlled.

As a first step, it is necessary to identify the most significant parts of the project that are expected to be coming to perform WBS in the best possible way. It requires top leaders of the project to identify the whole project direction for breaking down the structure. In the second step, responsibilities need to be identified from both personal and organizational point of views. Viewing tasks by using a responsibility matrix can be helpful to show who is taking responsibility for what (Pinto J. K. 2007). Furthermore, in such a responsibility chart, it’s easy to show the tracking way of who need to report to whom and who have to approve what. In the responsibility chart, project tasks are related to the persons who are dealing with them, and it also outline the authorities to different tasks.

To plan a project on time it needs to schedule the project based on WBS, by identifying sub-tasks and tasks’ duration and events in the milestone planning. That will give implementation indications; what implementation procedures that will follow the time plan to operate the tasks.

Using WBS is helpful for in how to following goals and implementing project step by step. Without work breakdown structure, project may more easily fail if underestimating the value of an exact way to follow. From beginning to final result there are goals in the procedure which are set by each level (See Figure 2.2).

Figure 2.2: Difference between using and non-using WBS (Pinto, 2007)
Why do projects need such a work breakdown structure? WBS includes projects’ objectives and it describes the project as an organization form. Based on such a structure, project’s performance, cost, schedules, assignments are easily tracked. Different parts of the project can be identified and shows responsibilities which require the need to communicate well for tasks to follow the same steps. It’s not as in the first glance that WBS seems only serving for breaking project in to specific pieces; it also shows how these sectors fit to each other in the overall plan as the project is developing. From such an arrangement to be efficient, project members and upper level conductors need to know who is working upstream for them (Markham S. E. 1995) and what performance that need to be achieved (Pinto J. K., 2007). Communication is necessary for project to operate well not only within the same stream of task but also between different stream levels.

2.3 About the project communication

2.3.1 Definition of communication

Narula (2006) has pointed out that most definitions agree that communication in any organization can be two-way and multi-way processes of transmission of ideas which is persuasive through feelings and behavior from one person to another person. From Narula (2006) point of view, communication can be classified into three main modes: non-verbal communication, verbal communication and written communication. Hinde (1999) defines non-verbal communication as usually operating via silence, gestures, tactile, olfactory and space-time cues, while verbal communication includes spoken words which could be exchanged through interpersonal and electronic channels. Written communication comprises printed media, electronic media and wireless and online channels (Narula, 2006).

During the procedure of planning and implementing a project, skills of communication and personal relationship is required (Kerzner, 2006). Many authors have propounded that communication is essential for successful project outcomes. Baker (2007) also argues that most of the project problems are caused by bad communication.

Managers are critical elements in project communication as they may have different experience, education and career background. Especially, from a project perspective, most of them have a background developed from engineering experiences. Some of them may be limited in education of management and communication (Kerzner, 2006). In order to match the defined schedule and some specific performance objectives, project members need to follow a set of coordinated activities and resources to achieve fundamental understanding of specific tasks. Related to project performance and time planning, poor communication can cause the problem such as that expectations are not met at the deadline and customers are not satisfied by the outcome of the project. By summary, from systemic statistical data of project
monitoring and measurement we can know that good projects can be considered as an efficient framework if protected from running astray (Rasming L., 2009).

Project communication is an overall word that consists of all aspects of the communication that are happening in project management. It defines all elements of project such as project managers, members, stakeholders, supplier and customers who comes both from internal and external of the project. Of course, using third part consultant is also a trend to manage project nowadays. Project communication is divided into two aspects of internal project communication and external project communication. Internal communication also has two ways consisting of written communication and interpersonal communication. Scheduled and non-scheduled communication is two main ways to achieve interpersonal communication. Interpersonal communication is defined as the interaction between all the persons who are related to project and included in the WBS, such as project leader and team members.

Dinsmore and Cabanis-Brewin (2011) make an unpacking for project communication from very traditional engineering ideas of project management. Communication in project should emphasize the importance of listening, perception of communication and the communication of bad news/information. No matter what kinds of principles need to be followed to improve communication in a project, there must be a basis of channels for communication to influence others. From a general management point of view, communication is flexible and dynamic; it is transmission of ideas, opinions and meanings. Communication is helping to state organizational conditions for sharing information and for providing fundamental understanding of tasks that are to be performed, and the objective which an organization is working for.

2.3.2 Communication models

Kushal (2010) said that the model is for conveniently showing something and indicates that modeling communication is one way to define the nature of it. Over the years, numerous models have been developed. Narula (2006) classifies a communication models in three categories namely stages, types and forms of models. Stages have four kinds of model, which are action, interaction, transaction and convergence. Linear and non-linear are the two types of communication models. According to forms there are lots of models that can be presented, such as symbolic models, physical models, mental models, verbal models, iconic models, analog models and mathematical models. This chapter introduces interaction models, and transactional models. There are differences based on the outcome when using these two models of communication. The transactional model focuses on equal level of communicator while the interaction model is emphasizing sending and receiving messages.

Generally communication is based on the information delivery called sender-oriented which emphasize how a sender must construct a message to secure a desired result
(Narula, 2006). Sometime, because of the lack of interactional communication, it may not work well with interpersonal channels, although they may work with media. From Narula’s (2006) opinion, generally miscommunication can arise from two aspects. The first aspect is that the source could not construct the message correctly for transmission while the second aspect is that the listener did not listen to the message or simply misunderstand it. There may be gaps between speakers and listeners in how to interpret what is said in the communication between people.

**The generic action ways are implicit method:**

It acts on both listening and speaking. In this perspective listening is emphasized and aims, for those who listen, to receive and act upon the message. Shannon-Weaver (1963) has developed a model of the communication process and has become one of the most important models in the beginning of the modern field. For the first time the model provided a general way to analyze the communication processes which is seen as providing a common ground in the discipline. The model shows us how the communications through electronic facilities can improve the communication process and enabling a discussion of the problem which could exist in communication (Stone. G, Singletary. M.W., Richmod V.P., 1999).

There are eight elements emphasized from Shannons (1948) traditional communication model; they are information source, message, transmitter, signal, channel, noise source, receiver and destination. The information source is the beginning of the process which represents the sender. Messages are the information sources that are running from sender to receiver. Transmitter is the encoded form of the message. Multiple signals will flow through the channels (Shannon, 1948).

The channels are represented by the small square in the middle of figure 2.3 below which usually is air, light, electricity, radio waves, paper and so on. This model also considers the communication noise problem which could be a factor to distort the message. Receiver is the person to receive the message. Destination is the end of the process (Foulger, 2004). This model that we introduce below is probably the most common that can be used in generic communication analysis. It became the staples in communication research and provided an influential counter-intuitive definition of communication. However, it also has weaknesses which consist of formal, static and linear complications.

Figure 2.3 shows a very common communication way which is happening in companies, interpersonal relationship and covers almost all features involved in management.

The interactive model has two linear models which are stacked on top of each other (Narula, 2006). This models focus on the relationship and effect of the messages between the sender and receiver. In interactive communication, linear feedback is added in order to have a better control on two-way-levels of communication. Narula e(2006) indicates that feedback from the receiver to sender is necessary and important.
for sender to maintain control over the intended effect and adjust the future message accordingly.

Figure 2.3: Interaction Model for Communication (Narula, 2006)

Figure 2.3 presents the early interaction model showing a feedback loop in which the sender sends the message to the receiver, who interpret the message by answering on it and get feedback from the receiver (who actually becomes a sender). The continuity of response between the sender and the receiver makes the senders to have better control on the predicted effect of the message and better control on in how to adjust things in future messages to be as effective in communication as required (Narula, 2006). Moreover, listening becomes the most important part if considering listening, receiving, decoding, interpreting and acting. But in such a communication style, Narula (2006) pointed out two limitation of it. First, due to the fact that action and response are separated, the exchange in this way and process of sending and receiving messages and the interaction between the sender and receiver is not true interaction. Second, Narula (2006) also says that the clarity of the message could be lost if it is applied in a multiple or mass message system as it could cause too much noise.

Transaction models of communication
Barnlund (1970) underscored the transactional model of communication as giving and receiving messages that are simultaneous and mutual. West and Turner (2009) argue that the cooperative feature is the core meaning of transaction during communication process, which means that the senders and receivers both have the responsibilities on the effectiveness of communication.

Transaction model prefers to build a shared meaning between parties which is the core different compared to the interaction model (waiting the feedback after sending messages) (West & Turner, 2009). This model represents a nonlinear model and origins from the constitutive view of communication, which focuses on functional communication (Littlejohn and Foss, 2009). Littlejohn and Foss (2009), also mention that the transaction communication model is created to have a profound effect on the field to create change. Narula (2006) emphasizes that communication is treated as simultaneous responses in the transaction model. Narula (2006) explains the process of this model as person A is speaking and person B is coming out with messages or feedback through body postures, facial expressions, eye movements, hand gestures and
so on. The characteristic of this model is the flow of messages and potential messages that simultaneous are generated by both person A&B via their specific message system and the overlapping line that merge into interactions.

![Transactional Model for communication (Narula, 2006)](image)

Figure 2.4: Transactional Model for communication (Narula, 2006)

Different, compared to the interaction model in which the ‘A’ interact with ‘B’, in the transaction model both ‘A’ and ‘B’, are that those participating in communication take part simultaneously and they mutually perceive each other as communicators. Moreover, the sender and receiver both make necessary adjustments to the messages which are exchanged as information transactions. Therefore, in this model, both sender and receiver are joined in the process of creating meaning in a relationship (Bruneau, 1996). Foulger (2004) points out that this model acknowledges neither sender nor receiver of messages and it prefers to label the people associated with the model as communicators who both are sender and receiver. Moreover, Foulger (2004) also said, a distinctly interaction model which implied an equality between communicators often doesn’t exist although an excellent model can be proceed in many ways, even in the interpersonal contexts. But, if is also mentioned that there is a mid-person acting as interpreter to transfer communicator’s motivation, assumption, attitude, etc. During the communication, information may be changed more or less after times of transfer. More times interpretation, more different from the original information (Mullins L.J. 2010).

In Foulger’s view (2004), transactional model can be concern with the patterns of communication behavior within the relationship between sender and receiver. Moreover, this model can be concerned without the patterns of information and redundancy which means that the communication can be effective by identifying the patterns of communication behavior. In addition, it can be used advantageously when the pattern of behavior is defined. The unique characteristic of this model is that the messages are built by both senders and receivers and both verbal and nonverbal communication is necessarily part of the process (West and Turner, 2009).
2.3.3 Communication in project

As the theory we mentioned above, the two most main aspects is “Establishing Work breakdown Structure in Planning Process” and “Communication”. The beginning of project is extremely important and playing critical role to an entire life cycle, which project planning is. Without a good planning, entire project will develop into astray, because it lacks of exact direction, objectives and certain structure for arranging tasks to the members of the project.

So from the start of project planning, it needs objectives making, responsibilities identifying and scheduling. When we put these aspects of planning together, there is a work breakdown structure (WBS) made. WBS is the indicator created by project planning and it is lighting the ways for project’s future. But during the study of WBS, it is formed from top to floor in which the project is broken “down” in WBS. It emphasizes the hierarchy in project from top management to operators. Because of the help from WBS, tasks can be divided clearly and without going astray, everyone knows their responsibilities and when they need to be finished.

In the traditional interaction model for communication, the sender and the receiver were divided into two different roles in communication. The message sender, from this point of view, was presented as more active, while the receiver was the one influenced by sender. Anyway this perspective presented the loop of feedback and the message flow which was good for the coordination (Wilemon D. L. 1997). But if the situation could be more balanced, the whole procedure of communication can avoid misunderstanding and change “order” into “discussion and negotiation” (Burke R. J. 1969). This is called as the transactional model for communication.

In the transactional model, as presented above, there is no message sender and receiver; there are only communicators engaged in the communication process. If the transactional model is combined with work breakdown structure it looks like the form below in Figure 2.5. It emphasizes the coordination and interaction between project members. Everyone is participants in the project no matter what kind of tasks is put on their shoulders; there is one common responsibility for them and that it is communication. We don’t demand that everyone has communication with each other, but basically demand of interaction between management levels and different department in same management level is necessary (Andrews R. I. 1988).
This communication method, it’s a combination of the structural project’s interaction communication model and transactional communication model in WBS. In this model which we here developed and suggest, the sender send message through different channel which have some noise that may influence the original meaning of message. Then different receivers get the message and can communicate with each other regarding their relevant task, which can entirely improve the efficiency of the communication. Last, different feedback from various receivers goes simultaneous back to the sender. We are able to view how to handle the projects in a different ways which allow people to do the same task or treat different task-levels by keeping in touch with each other directly, without higher level conductors’ control. It is free and flexible way to communicate in the same task-level without their needing the managers’ orders (Soderholm A. 2008). Some operation problems need to be solved by operators. There is also a requirement to communicate without a “communication switchboard” because it may be a good way to avoid some problems caused by delayed information.
3. Methodology

This chapter has five parts, which are research process, research approach, data collection, validity and reliability, and data analysis. It is mainly provided to introduce the method we selected from the methodology literatures and to discuss why we choose the method. We also introduce the information about the respondents and discuss the validity and reliability of the thesis.

3.1 Research Process

The research process is shown in figure 3.1. In chapter 1, the research question has been set in which we wanted to study in depth theory about project planning and integrated it with a case project. The next step was to decide the mixed research approach which involved both quantitative and qualitative methods.

The secondary sources are divided in two parts which consist of internal as well as external sources. We gathered information and collected data from the case company’s secondary sources to know the real situation. Moreover, we collected external data from theories, books, articles and other internet information. However, on limitation is that the company doesn’t have any information presented on internet and no home page. Therefore, we conducted interviews with the manager of the company and sent out a survey directed to company leaders and employees. In addition, the secondary data and primary data, especially the interview data and questionnaire data, are analyzed. Last, a conclusion of this paper is drawn about the result and giving answers of the research questions.

Figure 3.1: The overall research process
3.2 Research Approach

Creswell (2009) mentions that there are three types of research approaches connected to how to collect data which are called quantitative research, qualitative research and mixed methods research. All methods have their own advantages and disadvantages. Dow (2002) indicates that the best method depends on the research purpose, data availability and external factors.

Yin (1994) argues that qualitative research could be used for those researches which need information from investigating, interpreting action in order to understand the phenomenon by the means from an insider’s perspective. Creswell (2007) points out that qualitative research is a way to explore and understand the meaning individuals or group attributes to a social or human problem. As the research process moves on it is necessary to create a picture of what are the main questions and procedures, decide what kind of data that could be collected if considering from the specific participant’s conditions and how qualitative data could be analyzed. Other questions of concern are if we should apply inductively building approaches going from particulars to general themes, and how we as researcher can make interpretations of the meaning of the data.

On the contrary, quantitative method is to search the information that could measure, describe, and explain the phenomenon of the reality, which means that the researcher needs to gather plenty of facts to be able to analyze the phenomenon (Yin, 1994). Creswell (2008) indicated that the quantitative method is a means to test objective theories through examining the relationship among variables. In this type of research, the researcher has assumptions about testing theories deductively, establishing in protection against bias, controlling for alternative explanations, and being able to generalize and replicate the finding (Creswell, 2009).

Mixed methods research is an approach that combines both qualitative and quantitative methods. Creswell and Plano Clark (2007) indicate that this approach involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in the study.

Based on the explanation above, the approach that we use in our research are mixed research approaches with quantitative and qualitative methods. As the aim of our research is to integrate the project planning theory with a real project case, a mixed approach might provide a more complete picture of our research problems.

3.3 Data Collection

Yin (1994) states that there are two methods to collect data which depend on the use of primary and secondary sources. Primary data usually are first-hand experiences and sources which are collected by the researcher via interviews, observations, surveys, and questionnaire for a particular purpose (Yin, 1994). The main part of empirical findings and materials mostly come from interviews and questionnaire sent to the managers and
employees involved in the case project. Secondary data usually are previous data which are collected to support the research. It consist of text books, articles form journal, magazines and annual reports.

Secondary data: In order to write literature review, plenty of journal articles and several books were used in this paper which is related to project planning, work breakdown structure and communication models. Moreover, some theories about methodology and some definitions in the introduction also are gathered from books and articles. Based on our use of secondary data, we can learn from the knowledge of work breakdown structure and communication, find out how WBS could be of help for establishing a new recyle distribution center, and solve the communication problem that occurred during operating WBS in the recyle distribution center project.

Primary data: due to that the company doesn’t have information on their own website; we conducted interviews to the company manager, stakeholder and supervisor, and make questionnaires to the employees. Therefore, the empirical finding is entirely consisting of primary data from interview and questionnaire.

3.3.1 Interviews

Kumar (2008) regards interviews as a systematic method which consists of a talking model in a more purposive and more systematic manner compare to daily gossiping. DeMarrais (2004) defines interviews as a process that researchers and participants have similar to a conversation in which the parties focus on questions related to the research study.” Blumberg (2008) mentions that interviews could be conducted in five different ways, which are personal interview, telephone, mail, computer or a combination of these as an research approach. Due to the long distance between Sweden and China, telephone interview were selected in this thesis.

We selected this ongoing case which is operated by three companies, Litian Company, Huatian Company and Zhongnan Company. Because Litian Company is one of researchers’ family businesses this means that we can get more useful detailed information and data. Moreover, we can study the case with literature that may be of help to improving understanding the case. We interviewed three people in the case project, manager Guiqiang Wang, supervisor Ting Lin, and stakeholder Jiayong Yang. We have made telephone interviews with manager Guiqiang Wang in daily study, therefore it is hard to calculate the numbers of times and exactly times in each telephone interview. We have interview Ting Lin three times and Jiayong Yang two times by telephone.

Guiqiang Wang is the manager of the project. His responsibility is to be in charge of the general operating works of the project and keeping in touch with government and external stakeholder communication.
Ting Lin is the supervisor of the logistic team who is in charge of calculating, delivering, transporting and storing the material.

Jiayong Yang is one of the stakeholders in the project who have no specific work or tasks in the daily management of the project. However, as one of three shareholders, he usually plays a consultant role to help and give some suggestions in the project.

3.3.2 Questionnaire

Goddard and Melville (2001) defined the questionnaire as a printed list of questions which is offered to respondents to be answered. Jonker and Pennink (2010) claim that questionnaire as a document contains questions and other types of items to collect information appropriately to analysis. There are two types of questions of questionnaire which are closed question and open question (Jonker and Pennink, 2010).

Closed question. Cooper and Schindler (2001) define the closed questions as a type of measurement question that presents the respondent with a fixed set of question, such as nominal, ordinal, or interval data. Bryman and Bell (2003, p.116) also call the closed question as fixed-choice questions and pre-coded questions.

Open question. Open questions could have the possibility to make the respondents answer the questions based on their personal response or opinions (Jonker and Pennink, 2010). Hussey and Hussey (1997) claim that is good to solicit the more precise information through using respondents’ own words. However, these data may be difficult to analyze. Moreover, it may deter busy respondents from replying to the questionnaire.

As the employees in the project are very busy our questionnaire was not allowed to be too complex. Moreover, as the questions were aimed to test the communication problems between the same levels and different levels, our questionnaire was established by the use of suggestions to collect information of the project organization from the employees’ point of view.

3.4 Validity and Reliability

Remeyi, Williams, Money and Swartz (1998) indicate that it is quite important to consider validity and reliability as criteria to evaluate research and indicate the need of acceptance by critical reader, assessors or examiners.

3.4.1 Validity

Cohen, Manion and Keith (2007) define validity as an important key to effective research. It is worthless to perform research without validity. Kirk and Miller (1986)
define validity as the degree of findings that is interpreted correctly. Validity also was defined as an absence of systematic errors by Lundahl and Skärvad (1999). If the study wants to be validity, it needs to solicit accurate, authentic and targeting data to increase the validity of once research (Bryman & Bell, 2007).

In this study, interview and questionnaire are the main source of evidences. In order to get the newest and most correct data to increase validity, we contacted the manager Guiqiang Wang lots of times by telephone. Moreover, it is also increasing the validity that we also interview information with different opinions in different level of the project, such as supervisor and stakeholder. In addition, questionnaires also built to investigate the opinions from employees. In this study, all literature references come from academic journals and books.

3.4.1 Reliability

In Kirk and Miller’s opinion (1986), reliability can be considered as the degree of a finding in the research that is independent in accidental situation and condition. Notrica (2007) states that reliability is the degree of the credibility of the result which indicates that the questions should be the same consistently in the questionnaire and provide result enabling answers to our research questions.

In our research, telephone interviews were chosen as data collection approach which makes the answer intractable for us to ensure the security and 100% reliability. The respondents may lie or sidetrack their answers because of trade secret or other reasons. Moreover, the questionnaire was built by us according to the theory and our understanding of the situation. The questionnaire was sent out via email which means that we can not guarantee that all respondents answer the questionnaire carefully or whether they answer the questionnaire by themselves. In addition, it is inevitable that the change occur in all the corner of the world. What’ more, our case project is an ongoing project which means that the situation may change all the time due to a lot of reasons. It is possible that other researcher may get different answers from the case even through the same question and author. Therefore, it is hard to ensure the reliability on this aspect.

3.5 Data Analysis

The data from the theory are used as guidance to investigate and analyze the case project. Moreover, the data from interviews are analyzed based on three aspects, project plan, work breakdown structure for RDC project, and communication problem in the work breakdown structure. The quantitative data from employees were collected to test the situation and problem that exist in the third level. It is also used to evaluate the situation of communication problem between the same level and different level. In addition, all the data are used for exploring the answer of research question which would be drawn in conclusion. The detailed data collected are shown in the next chapter.
4. Empirical Study

This chapter we discuss four aspects. First, the project background is introduced. Second, some project planning process and reasons are introduced. Third part introduces the work breakdown structure in the project. In the last part we introduce the communication problem which the project are facing and showing their communication model.

4.1 Project background

In 2010, we compared differences in two similar industrial companies in Litian Metal Recycle Company in China and Stena Metal Company in Sweden. From that research, Lin and Wang (2010) found that the Chinese company has shortages compared to the Swedish company such as the leaders did not acknowledge the important role of recycle industry as a vital component in the economic and environmental systems. We identified that a lot of Chinese small recycle companies had low efficiency in production which was caused by hand operation, bad communication with other in the company and low concentration on specific processes. After presenting our research, the Litian Company recognized their shortages and wanted to improve their performance in the areas. In order to enhance competitive advantage, to increase the business efficiency and create more flexible business channels, the company planned to coordinate their activities with two other companies by establishing a distribution center with the investment of a new multifunctional recycle machine. This distribution center aims at improve the efficiency of recycling processes in the three metal recycling companies involved.

We can name the case project “Recycle Distribution Center (RDC)”. This project is formed by three main recycle companies which are all located in Guangzhou city, Guangdong Province, China. They have similar history, size and operation experience. Before the project started, they were competitors as they operated in the same industry. They have realized their lack of improvement space without cooperation. In order to decrease their differences and increase efficiency, they saw the need to break their traditional way to operate and build up something new together. All companies are very engaged in the investment of a multi-functional metal cutting-sorting machine which previously has been used in a big recycling company in Sweden.

“It’s really good machine which can definitely help us to treble the operating efficiency, at least treble! After the distribution center has been built, we will become the area leader because we can operate the recycle processes for other companies. In this area, we are the big operator selling operation and logistic services to them. Other companies can save costs in their operations while in simultaneous there can be a transformation for their business ast they can just focus on as we can’t profit from trading recycle-materials” says Guiqiang Wang.
Guiqiang Wang is the owner of one of the three cooperating companies in the project. Of the three companies, he was the first owner that became interested in this distribution center idea. He had, however, not enough resources to build up such a distribution center by himself, so he organized the project and asked the other two companies to join it. The names of the three companies involved in the project are Litian Recycle, Huatian Recycle and Zhongnan Recycle. In this study, we name the three companies A, B and C for easier reading and writing. Guiqiang Wang is the owner of Company A, and he organizes this project and managing the project as a project leader.

In the project, the three participated companies invest into one legal organization as a project with the aim to establish a new company as a joint venture distribution center.

“In my past business experience, it must be failure if we just cooperate to do a new business without being stakeholders of the new established organization. It can’t be long term business without everyone being shareholders. Because we are going to have common objectives, strategies and operation businesses we can only have one common business by the creation of a joint venture organization”, says Guiqiang Wang.

After summer 2010, to conduct the idea, they started to discuss what needed to be done in order to create a new organization, and negotiated what they could offer to the new company. In the new company, they decided to hold different percentage of shares depending on how much they could invest in the project and the new company. During this process, the three companies had meetings to discuss their business plan. Especially in the start-up phase they often had dinner together to discuss business and to frame the whole idea during daily contacts. Dinner is playing a very central and important role according to their business experience. These are a vital part of the business culture in China, and something almost every business man must experience to join the career life. In taking part in social meals, they could communicate their opinions and built up consensus for future business. Of course everyone knew each other more because of social contacts and could establish personal relationship during the frequent contact and built up trust for future cooperation.

Finally, they decided to launch the project for establishing the new distribution center and decided that it was going to be operated as a new joint venture company. The name of the new company was not decided and registered in Business Administration Department of Guangzhou City. The Business Administration Department needs to do more auditing and approvals before the company could be registered on the government’s business roll. When the project start the situation is that the three companies had provided resources into the project. Their original recycling yards are, however, still running as usual until the entire project is established. They have provided staff, money, ground for distribution center and also public relationship.

What is the motivation for them to launch the business project? The previous way to do
businesses in the three participated companies was to earn through “price difference” profit which was performed by trying to have control of the timing of buying and selling of the recycling materials. In past, they bought material from small collection station or personal resources, and then hired workers to sort and package the materials in the recycling-yard. Finally the material could be sold to metal melting companies. During this business, the recycling companies needed to take the risk of price changes. For example, it bought a ton of ferrous scrap for 2000 SKR and all recycling processes and transportations had to be done in one week. In this situation the market prices of ferrous scrap could be down in 1500 SKR. They had to make a choice to sell or not to sell? Sell it was definitely a way of losing money. If Not Selling it and wait for the good price, the company needed to pay for the cost of storage, maintenance and workers in the waiting time which could be between 3 days or 3 months.

The new company situation is to establish a new distribution center with the main business to sell recycling and distribution service to others. The recycle companies previously bought the scrap and sent it to distribution center. After the project, the multi-functional machine handle the entire recycling process for them and the packages of material are delivered to melting plant for customers in a very short time to avoid the price changes. After the machine is used, instead of humans to work for the recycling processes, the efficiency must be increase, and the storage and turnover time also to be shortened.

“This is a good opportunity for us to improve the entire business level and became the central element in the area recycling-business network if the distribution center is built and worked.” Jiayong Yang says, who is the owner of one of the companies.

To initiate and implement the new distribution center launching project, the three participants needed to decide what kind of resources and how much they could invest in the project. It was significant important in the start of this project that they signed an agreement or contract to admit the new organization and to clarify responsibilities as share parts. The shares are hold by the three owners of the participating companies. A holds 25% while B and C hold 37.5% each.

Company A didn’t invest as much tangible resource as B and C. Offering management, strong public relationship is instead seen as a part of their intangible investment. Furthermore, it’s extremely important for the project to have these intangible investments. After the shares for each company were identified, they signed the agreement to create the new company and agreed to progress in time.

After the interviews made by top manager Guiqiang Wang and shareholder Jiayong Yang we could see that two main problems existing after the project was started.

“Task-delays and task failures are always happening. I don’t think that it is good news for the stakeholders who had invested much into the project. We need our project to go
in a healthy way and not always struggling with problems!” says Jiayong Yang.

4.2 Project planning

After the project was decided to start, the project planning process was initiated at the same time. During the study, we contacted its project leader Guiqiang Wang and shareholder Jiayong Yang and employee Lin to get the information of what they had done in project planning.

4.2.1 Project goals

Jiayong Yang told us that “Until now, our final goal of this project is to start the company; we don’t have much time to waste before the project needs to be finished. Because of the competition we will become bigger and bigger, so we need to start the company before others do that. It’s harder than before to get business permission from Business Administration Department. Furthermore, in case of losing money, we can’t stop our old business before the new company started. It also gives us more pressure to take care both of the old business and the new project at the same time”.

They planned to finish the project before the mid of 2012. In order to finish the final goal, they are facing the main tasks which were “building up the distribution center” and “getting the permission from Business Administration Department”. As long as these two goals couldn’t be achieved, it meant that the new company couldn’t be started. The internal main task was to build up the physical plant, and the external task to apply for the business permission as soon as possible. Both of the two goals were critical for the new company as it can’t begin to do business without any one of them. Guiqiang Wang told us that the time they could get permission from government was uncertain, but that is no doubt that they need to prepare everything well done before they can get it. It means that the physical works need to be finished before the government’s approval procedure. According to the project plan, the physical plant can be established before the end of 2011. Guiqiang Wang expects that the government needs 3-4 months to do the approval procedure for permission.

“If the project can work successfully by following our plan, the new company will be started before July, 2012”, says Guiqiang Wang.

4.2.2 Launching the project

“After the share had been identified and all participants agreed to start the project, the first main thing is holding a big meeting with all the employees from our three participating companies” says Guiqiang Wang.

At same time they decided to start the project and planning for the tasks for the project,
they informed their employees immediately. Because once the beginning the project was started, some of the old employees could no longer be hired by their old companies but they were going to become new workers employed by the project. Almost all of their jobs, tasks and assignments would be changed in extents. Everyone had to know about the project as soon as the managers decided to work on it.

During this time, the new project became “hot news” or “hot topic” in the companies. The employees began to discuss the new project when they met each other. Before all the real work started, a big meeting was hold and all the employees took part of it. A “launching celebration day” was hold in February 2011. It was the ending-day of Chinese New Year holiday.

In the launching of the project celebration day, a big company meeting was hold in which every project participant received his/her new position title and they had the opportunity to meet all their new colleagues. Furthermore their new department/team heads were introduced to them. Some of the employees got totally new positions in the new organization and the change even surprised the others. Someone felt confused about the jobs relocation. For example, Lin was the director of accounting department from A Company; everyone felt surprised that he was relocated as the head of logistics department.

There was also a big party dinner offered after the launching celebration and all the staff participated in it, one table one department/team. Holders intended to arrange the tables in this way, because of the purpose was to offer an opportunity for employees to know each other in their new department and team improving to get closer to new colleagues. This was the first time for them to communicate to each other and the holders wanted to create such a chance for them as a good beginning for future work. In this party dinner, everyone had fun and it gave them very good impressive in relation to both the new company and the new colleagues. The main objective for this launching day was to inform every member before the starting of the project, and to inform them about the new task allocation in relation to them. Some of them are going to stay in their old companies and some of them should work for the coming project for more than one year.

4.2.3 Job relocation for the new project

Before the project was initiated, the three companies had the similar management style and structure of organization. Each company had a top management who were the company owner who was controlling the main management without any hired senior managers. They were playing the role as the company top managers, marketing pioneer, and they also worked with public relationships which they saw as very important to handle the relationship with suppliers and buyers. Everyone in the company was getting
the orders from their top manager and finished the tasks given by the same person. In company A and C, there were only less than 20 employees in each company, company B had 24 employees because of its bigger yard which required more people to work with the sorting process. After the merger of these three companies there was a new organizational structure established for the project. The three companies kept all employees and relocated some of them to work for the project, except some of the workers that needed to stay in the yards to keep the daily business going on.

“I do not know why my boss wants me to take the responsibility for logistics department in the project when he told me his plans to do that. I had been working for accounting since I joined company A; this is totally a new challenge for me. Therefore, I talked to the bosses when we had dinner together and I told them about my confusion of my job relocation. After the conversation, I knew the reason for my job relocation, and now I feel happy to get promotion to become the head of new department; it will be a new step for my career” says Lin.

Lin was working for A’s accounting before the merger of the three companies. She was also very good friend of Guiqiang Wang and that was the reason why she could work for A’s accounting for such a long time. What was the reason of Lin’s new job? Guiqiang Wang says that there were almost non-mistakes during the time while Lin was working for his company’s accounting. She is a very sensitive and caring woman even though she was working with such a tough and boring task. She needed to handle hundreds of numbers and accounts every day, but she was always calm when she was facing them. Her personal characteristics were important and attractive to the top management and the main reason to promote her in the project was offer her the job as the head of logistics department. Because in the project, there will be many small and “boring” tasks that need to be solved and tracked. Therefore, the head of logistics department need to be very patient and conscientious.

“I guess you can feel that it is a very significant example for our project to show the intention to create a new organization with new structure” says Guiqiang Wang
4.3 Structural project by WBS

Figure 4.1: The structure of the case project

This is the structure of project tasks as told by Guiqiang Wang. In the main task of building up the distribution center, there are three sub-tasks and these are design of the physical location, installing the multi-function machine and logistic preparations. Before the multi-function machine could be installed, the company needed to design the physical location of the distribution center. That was not experienced as a tough task, because all of them had worked for recycling industry for years, so they saw themselves as very familiar to the work. The only thing they needed to pay attention to was to finish the work in time for the design. The work needed to be done before the logistics and installing part begins to work. Before the logistic work could start, vital components of the machine needed to be installed in exact spots. Because it could be very hard to move it again once it was installed. After two weeks discussion the structural plans for the project was performed.

“Even though we are not doing a big project with complicated tasks and organization, we still need to line out a structure for convenience in management” Guiqiang Wang says in the phone when we called him in April 2011.

In this process, they began to consider the tasks allocation in the project. They didn’t need to hire many new people because the employees from the three companies were very familiar to recycling processes, facilities, plant arrangement and they know how to help the project to build up a good recycling distribution center. The construction part in the project had already been done before the project started, because there was an old office building in this location that they could use for the new company. This building was also a part of the investment from company B. In the project some of their old employees could be engaged to handle the physical location and building work. Only some new things were added and that was to hire people to work for the installation of
the new multi-function machine and buying some trucks for transportation.

How could the project be structured in work? When the project had started, the three holders and their assistants had meetings to discuss the tasks allocation. There were usually five persons taking part of the meetings which were the three holders and two assistants. They discussed everything of the project such as project definition, investment requirements, the need of hiring people, tasks responsibility, the set up of time plan and so on. During the discussions, the three holders almost did all the decisions. If anyone received responsibility for a new task which made him/her unsatisfied or confused, he/she could give feedback to the leaders. In some occasions there could be arranged for an extra meeting with the confused employee to solve the problems. On the other hand, the time plans of the tasks were also made by the senior management persons in the “senior discussion meeting”. After decisions were made, they gave orders about the tasks to the personal, and these constituted the “mission guide” for the employee to follow.

“We have substantial experience on doing recycling business or starting new business, we have confidence and we trust our decisions. Moreover the decisions were made after the discussion with our assistants and not only the personal willing of bosses.” Guiqiang Wang told us in strong and confident tone.

4.4 Communication in the project

In order to understand the situation of communication in WBS of the case project, we not only interviewed the manager Guiqiang Wang, but also conducted a survey among employees. The survey was conducted in three departments and totally 15 staff members participated. They were the design team which had 3 staff members, assembly department with 6 staff members, and logistic department with 6 staff members. About 47% of our respondents’ were between 25 to 35 years old which occupied the biggest portion of data. About 33% respondents are from 35 to 45 years old. The age from 45 to 55 respondents occupied 20%. This sample size is quite small and the age groups are inequality which may cause bias.

From the survey we received the following information…..

4.4.1 Communication model in WBS

From the interviews, the manager Guiqiang Wang says that WBS was communicated according to how the work was performed at different levels. The orders or messages were sent via the top management level to the second management level and the second level arranged the task to the third staff level. According to Guiqiang Wang it was planned that the feedback should be sent back from the third level to the second level
and from them back to the top level. However, due to the different responsibilities at different levels inherent in the project, the supervisors say that they did not have a lot of opportunities to communicate with other supervisors.

The manager mentions that the communication in same level or department may occur at weakly meetings. The daily communication, according to the planned work structure, could be handled by telephone, SMS of cell phone and special communication software QQ which commonly is used in China. Some employees who are familiar with computers could communicate through email.

From the survey sent to the employees, the result shows that most of them are using verbal and nonverbal communication method during their daily work, which occupied 67% of the respondents. About 13% of the employees consider that verbal communication method was more frequently used by them in daily working and about 20% of them choose nonverbal method as their daily communication method in daily work. In addition, the most important tasks at work were arranged at the regular meeting and all the staff members must participate in the meeting.

The communication flow is presented in the following model in figure 4.2.

![Communication model](image)

**Figure 4.2: Communication model used in the case project**

The manager sends the order to the supervisors in different departments at regular meeting and gets the feedback at next meeting. The supervisors send the order which is received in the regular meeting with their employees in their subordinates’ meeting, and then get the feedback at next subordinates meeting.

4.4.2 Communication problems between levels in WBS

From the interviews of managers and the survey of employees the following problems are identified.
**Problem one: Comprehension of order**

The manager mentioned that his subordinates sometimes cannot understand his order or messages appropriately and it makes that the staff members often misunderstand the tasks and how to work in the right direction. As the staff members are unable to comprehend the orders or messages appropriately, the manager feel unsatisfied to most of the work performed by his employees. In generally, the manger thinks the quality of communication in the structure is acceptable but there are still existing problems that he wants to improve.

From the questionnaire sent to the employees the data shows that about 40% of the employees do not understand clearly or appropriately the daily orders received. Only 20% of the employee can totally comprehend the orders they receive from the supervisors. Moreover, only 20% of the respondents choose to communicate with their supervisor initiatively when they receive a confusing order. About 33% of the employees choose to just move on with things and do their best without asking any questions, which means that the employees low awareness of how to improve the tasks quality. About 47% of the employees choose to ask a colleague which means that they have the awareness to figure out the meaning of order by turning to others in the same position.

**Problem two: Lack of discussion**

'It is hard to control or acknowledge every staff member or every supervisor’s about their efforts because I do not know their real working state or situation’, Mr. Wang says.

The manager says that they should get the feedback and check the progress of the project from regular meetings, but it is still difficult for them to know the details and employees’ real situation or how they are thinking.

From the survey, we can see the result of how the employees think about their supervisor or manager in the following table 4.1. The table is the results of four questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Have no idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communicate for task frequently</td>
<td>60%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>2. Feel like a vital part in communication</td>
<td>6.7%</td>
<td>80%</td>
<td>13%</td>
</tr>
<tr>
<td>3. Understand my task and problem</td>
<td>13.3%</td>
<td>33.3%</td>
<td>53.3%</td>
</tr>
<tr>
<td>4. Acknowledge my effort</td>
<td>60%</td>
<td>13.3%</td>
<td>26.7%</td>
</tr>
<tr>
<td>5. Open for my ideas</td>
<td>53%</td>
<td>20%</td>
<td>27%</td>
</tr>
</tbody>
</table>

The first question was about how they think about the frequency of communication with supervisors about tasks. Most respondents thought that their supervisor
communicate with them about tasks frequently, it is taken up about 60% of the respondents. 20% of the staffs have contrary idea and about 20% of them have no idea about how to answer this question.

The quality of communication can be embodied into respondents’ self-cognition during their daily communication process, which is shown in Figure 4.1. There are 80% of the respondents that do not think they are playing an important part in the communication process. About 13% of them had no feeling for communication and only 6.7% respondents felt that they play a vital part through communication.

The third question wants to text if the supervisor understands the staff’s working problem or situation in their subordinates’ opinion. Most of the respondents do not know whether their supervisor understand their problems which are represented by 53% of the respondents. Another big portion of respondents, 33.3%, think their supervisors do not clearly know their real situation. Only 13.3% of the staff agrees that their supervisors know their situation well.

The same reason as for question 3 above, question four is testing if the respondents think that their supervisors acknowledge their effort, which can also be a standard to evaluate the quality of communication. There were 60% of the respondents, which are the biggest portion of the respondents that think their supervisors know their efforts. About 26.7% of them think that they do not know the supervisors ‘views of their work and only 13.3% of them felt that their supervisor doesn’t know their efforts.

The last question shows the employees’ opinion about the supervisors’ attitudes to their idea. About 53% of the respondents think their supervisors are open to their ideas. 20% of them think their supervisors cannot accept their ideas easily which means they may have low opportunities to communicate with supervisors and their ideas may be reduced. There were 27% of the respondents that chose the option that they didn’t know.

4.4.3 Communication problems in same level of WBS

In the case project, some parts of the assembly task were done ahead of time, but assembly team didn’t inform logistics team in advance for requesting the backup components. There was a gap of continuous supplying of assembly components which directly caused some days delay of backup and idle working team.

As we mentioned above, during the case project planning, in the task structure “assembly” and “logistics service” the work were allocated in for the level 3 tasks which are working for the level 2 task “building distribution center”. So in the level 3, logistics service was actually serving for assembly team for components supply. In the weekly regular meeting, assembly team gave logistics team a weekly material requirement of the assembly mission. These requirements were formed as a material
name list with time and number. Usually the logistics service delivered the component in time to avoid delaying assembly. But there are always some unpredictable situations. For example assembly team finishes a short term partly mission at Wednesday which should be done at Friday as the planned on the weekly meeting. By following the plan, logistics team would send the backup components at Friday and they didn’t get information of delivery in advance. So the assembly task had two idle days with doing nothing. Sometimes, assembly team needs backup if some components are broken during the operation. They report it to level 2 supervisors instead of contacting level 3 logistics team immediately. During the information is transferred between levels, it takes few days while the assembly team can’t do anything without the new components.

“During the project is going ‘we don’t know’ are the three words always happening between us. I feel we are always lack of the ‘first hand’ information from assembly team.” – Ting Lin, logistics team leader.

These situations also happened between the tasks performed in level 2 of the structure. During the application for license, the project needed to be kept updated in the working progress of building the distribution center. Government kept inspecting of the working progress. Progress reports were made by “building” task team. Inspecting was arranged by “applying license” the person within the government officers and after he sent the progress report to inspecting office. Sometimes there are changes in the building task after the progress report was sent. If the application person does not send the modified report to inspection office before the inspector is sent to check the progress. It was seriously caused the bad impression and record. The worst outcome will significantly stop the application of the license. And the new company could not be started without the business license.
5. Analysis

In this part of our study, we analyze the case project through by referring to the theoretical framework and empirical findings. From the theoretical part we have studied WBS as one very important part of project planning. Before making such a structure for a project there are several elements that need to be achieved, for the example identifying project and setting goals are quite important for planning project.

5.1 Start of the project

In our study, the case project had spent six months for organizing participants and identifying the project parts which were performed after the company holders decided to initiate it starting summer 2011. We could see the importance of all involved stakeholders to be committed to support the project goals. From Guiqiang Wang interviews, the three stakeholders agreed to the project goals and to finish it before the end of 2012 and that the “installing mission” needed to be done about four months before the final achievements of the project..

Besides the goals, the planning of the project is important and essential are procedures for goal discussion in the planning process (Antvik S. 2007). For example, we mentioned in theory part the need of launching meetings during planning, and every participants or person related to the project need to take part in the meeting to exchange experience/opinions for planning (Knutson, 1995). Systematically collecting experiences from everyone can improve the entire plan to be more integrated and to avoid many problems caused by the lack of involved people’s common understanding (Meredith J.R. 1996). Obviously there were no such launching meeting held during the planning process instead they spend time to get to know each other by offering a business dinner. It is important in business culture in China to have a lot of business dinners during every period of doing business. These are, however, not a formal meeting as it lacks professional meeting procedure including documentary, recording, etc. Furthermore, when people drink and eat at a dinner it is definitely affecting the concentration of serious considerations. As Jiayong Yang and Guiqiang Wang told us by the phone interview, many times they met at a dinner for the discussion of business questions with other top managers and their assistants, but they didn’t have such kind of dinner with subordinates who were serving in different departments in the companies.

Because the project didn’t have systemic meetings with all participants, problems occurred during the working with WBS. Some of the employees didn’t know that their job was relocated and why before they got the orders. Top managers made the new decision without discussing with them which could cause communication problems.
(Wilemon D. L. 1997). For example, from the empirical study we can see that Lin was confused about her new job relocation as a head of the logistics team, and she felt unconfident because of the new task in ways she never have done before. This example illustrates the necessity to care about the employees’ feelings when they are supposed to be responsible for new tasks. Senior management made decisions without communication with low-level workers; this could be a reason to get low positive working experience or deficient in relation to the project plan.

After the stakeholders agreed to launch the project, one of the most important issues is to build up a work structure for the whole project which also is suggested by Hubbard (1993), to handle task allocation and to ensure that everything could be operated well in the project.

5.2 Work breakdown structure for the RDC project

During our study, we found that Work Breakdown Structure is the most basic platform for the project management. Everything of a project is developed on such a structure implemented. WBS could be used as guide to support the project goals regarding cost, time and communication aspects (Pinto J.K 2007). From the previous study of structural project, we can see that the common beginning is breaking down the project tasks from top objective to tasks in more details. In the procedure, WBS management is about figuring out the relationships between tasks in different levels and to identify which level and task could be controlled and by whom (Ballard G. 2001). Finally, the work with WBS contribute to create suitable titles for each task and to clarify responsibilities. Hence, the structure shows the goals, relationship between elements, and responsibilities (Pinto J. K. 2007).

In the case project, before the project started the manager showed the work structure to the workers who came from the three participating companies. In this situation they didn’t know their exact positions in the new organization and what kind of responsibilities they are expected to take. Everything was not clearly stated and related to the tasks discussed in the planned structure. At the beginning, the final goal was obviously to start the new business based on building up the distribution center. Those involved in the initial meetings ignored, however, the importance of getting business license from Business Administration Department. This caused extra delay to start the project.

As Guiqiang Wang says, they showed the structure to the project workers and everything seemed to be clear in work that followed. The top goal was divided into sub-goals and broken down into some specific tasks from top level to the bottom strengthening the hierarchy of managerial relationships. WBS is, in this way, not only showing the way to identify the tasks level, but also indicating who’s having authority for someone else and who’s in charge of subordinate missions or task-team (Spence W. J. 1998). From the structure, every top manager in the case knows there is one more critical task which is getting the license to operate from the official department. For
example in the case project everyone knows that a license is necessary for doing business in the legal way. Before they worked with the task structure of the project, they didn’t realize the impertinence of the license in building the distribution center. It makes sense that because of the tangible task to build up the distribution could be seen as attractive to most people. The center is also going to take all the responsibilities of future business including recycling business by the investment of the multifunction machine and logistics business by distributing operation. Comparing to the tangible task of building distribution center, the license is just a piece of paper from official department. Actually it’s much more important than just a “paper”, it’s one of the most important formal requirements needed to start the business. So it should be in the second level of task structure where the “building up distribution center” is. So in the structure, it’s easily to identify the impotence of tasks and figure out which one is of prior needed to be solved.

5.3 Communication problems happening in WBS

During our literature and empirical study, we identified problems in how to use WBS in the case project management.

5.3.1 Problems in different level in WBS
As we mentioned above in the empirical study, there are problems happening at the beginning of the project in the planning process concerning how to work between different organizational levels. Doshi (2008), argues that a successful complete communication process could only be achieved when the message is understood by the receiver and the sender including satisfied feedback form the receiver. However, when the case project set up the WBS to identify the tasks and assign tasks for the employees, someone felt confused about the job relocation.

The case project usually uses formal communication skill and discussion/information in meetings (all project participants) for the discussions of project planning. Formal meetings are supposed to collect opinions and suggestion from people of different parts of a project (Gohil U. 2010). This opportunity to communicate could clarity misconceptions as the receivers can provide with good suggestion to the sender regarding the action in the communication process (Corrado, 1994). In the case project the confused workers didn’t have any opportunities to discuss the project plan with their leaders and supervisors during launching the project.

Our empirical findings discussed in 4.4.2 show how the supervisors and employees lack information and ability to engage in discussions. The communication in the case shows similarities expressed in the traditional interaction communication model (see figure 2.3). The interaction communication model (Narula, 2006), where the sender (supervisor) send the message to receiver (employees) and the employees just encode the message and combine their understanding without discussion could be seen in the spontaneous discussions between members at the same level of work. As
misunderstandings seems to stay within the group the overall understanding of how to improve work are not transferred to other levels in the project. Therefore, it causes lack of information such as in the case of job relocations which increases their confusion. Moreover, it also causes misunderstanding between the message sender and the receiver which obviously causes delay of the project and to reach project goals in time.

5.3.2 Problems in the same level in WBS.

Communication problems also occurred at the same level when working with WBS as project managers didn’t entirely use the benefits of the work structure to identify communication paths and objects. Work at the same level, as the original work breakdown structure suggests, there are no connecting lines between elements having relationships in same level (Posner B.Z. 1986). In the case project, the problems within the same level of WBS could be understood as working from the traditional interaction model (Narula, 2006). In fact, connection between employees is necessary if they work at the same level or department because the tasks are more or less influenced by each other in the WBS context. For example in the case project the assembling task is very closely related to logistics operation. It’s not necessary to contact each other through the upper supervisor to be conductor in every problems/missions, because in most of these situations it will cost such a long time for them to communicate. When working at the same level, intercommunication can save much time without the upper supervisor involvement as “switchboard”. It is preferred that the task teams can keep in touch at any time in case of emergency or sudden changes.

Furthermore, there is always coding and interpretations between two communicators and they could also manifest misunderstandings during the information transfer. (Mullins L.J., 2010). “Cost more time for fixing mistakes” and “misunderstanding” are two main outcomes of the problems in the case project. Moreover, Narula (2006) indicated that the characteristic of transaction model is the flow of messages and potential messages were generated by both person A&B via their specific message system and the overlapping line merge into simultaneous interactions.

From the use of the transaction communication model and the interaction communication model in WBS, we suggest to build new “bridge” between the two modes to view communication in tasks at the same level and at different levels. From the case study, we suggest a model as follow.
Between the task-levels in WBS, all components of tasks could be treated as communication objects having hierarchical relationships between different levels of the work structure. As the Figure 5.1 above shows, staff members working with sub-tasks are serving staff members working with the main tasks on the higher level. The responsibility of supervisors at higher level is to supervise sub-levels. It causes the usual downstream communication between levels in sending orders. Upstream communication is performed by feedback of the mission outcomes after operation of the orders are done.

During the communication between levels, there is lack of simultaneous communication or discussion on the tasks. Sometimes, higher managers send the orders without considering the technical and operational views. That is the reason why operators may meet a lot of trouble during work performance as they are following the orders made from a top management perspective. In our theoretical study, we presented the interaction and transactional model for comparison use. We suggest that the project can communicate more efficiently by following transactional model. In the transactional model is emphasized the need of interaction between two communicators. From this perspective and related to the case project, top managers need to have more interactive communication with downstream operators to avoid the misunderstanding of orders. Furthermore, interactive communication may help to improve the understanding of orders to become closer connected to reality when the orders are made after the combining managerial and operational staff experiences (Gohil U. 2010). It can significantly reduce the rate of delay and mistakes for operators to perform the orders they get from supervisors.

From the theoretical study we have seen how communication methods are necessary to
decrease misinterpretation in the transfer of information. Downstream workers don’t need to get feedback from higher managers through some mid-persons’ interpreters, their feedback will not be misunderstood after being interpreted with mid-persons’ personal understanding, attitude, emotion, etc. It means there will not be mid-persons between each two levels.
6. Conclusion

This chapter has three parts to presents the summary of this study and gives further suggestion to the project. Research question one and question 2 are discussed. Moreover, the suggestion for the project also is introduced.

6.1 How work breakdown structure could be help for this ongoing case project?

6.1.1 It gives the project a good beginning

From literature study of the book written by Pinto J. K (2007) Project Management: Achieving Competitive Advantage there is an obviously difference between using and not using work breakdown structure in project managment. According to the authors, companies could be seriously disoriented during the project process without having a work breakdown structure even though the project is going to the same final objective. So, if the objective is shown in a WBS the final objective can be achieved step by step if the project has a right WBS as a guide.

By following the ongoing project, we found that WBS can help the owners to divide the main objectives in the project into milestones and sub-tasks. That is significantly convenient for project to set its goals and to be guided in order to achieve them. After the goals are made, project can be conducted step by step without being disoriented in future management issues. Furthermore, while discussing and creating a distinct structure for the project, the managers’ responsibilities of the tasks are more clearly defined. In the start up phase of the project, it needs many times for discussing how to create a clear structure of the work which also enhances the participants’ knowledge about each other.

6.1.2 During project planning, tasks can be identified for future communication.

In the first step to identify the project, if the project is a part of starting organizational business WBS can help the involved companies to identify the shares of the whole project property. WBS force project participants to pay more attention on the intangible tasks by the use of efficient communication. That is why we combined WBS with the communication perspective and the necessary to consider the communication path within project organization. While WBS push participates to pay more attention to communicate with others, there will be important mission for project members to consider “who is the person I must report to?” and “what are the problems I must discuss with subordinates/managers?” In this view, WBS theoretically does not discuss how to identify communication paths in relation to different tasks/elements. By paying attention so communication in a project case, we have identified ways while working with WBS and show how communication is necessary to identify more
“exact responsibilities” for project participates. Furthermore, WBS can also point out some intangible important tasks for everyone to realize and to pay more attention to those tasks which may be easily ignored. In this situation, some stakeholders invested some intangible resource and they could find the way to have fair shares in the project. It means everyone in the project can realize the importance of getting license from the official department. The project shares are also easier to define if everyone realizes the need of getting the license which is one part of the important investment to the project.

From our analysis, the practical contribution of this study is to help project managers experience similar problems as in the case, to identify task and communication problems by paying attention to the hierarchical layout of a project and how different levels of the project step by step is working to reach the different task goals. Many subtasks need to be done in order to reach high level performance tasks. For example in our case project, the two main tasks in the second level of the work structure are both tangible and intangible. “Building up the distribution center” and “getting business license” are necessary for the final goal of “starting company”. So, the two main tasks have to be done before being able to reach the final goal achievement. Furthermore, there are three sub-tasks in level 3 which are needed to be done for the “building distribution center” task that are identified at level 2 in the project.

Beside, we also show how WBS can help project management to identify the hierarchy of tasks at different levels. In the case, WBS offers a platform for the project team to figure out the sequence of the 34 tasks which are identified to be performed at the same level of the project. It will be easier for all parties involved to understand the sequence of these subtasks required to be done to get a clear work structure which also could be shown within the same work structural level. From a structural perspective, it is important to implement the tasks not only on vertical levels but also in a horizontal way. For example in the case project “ground design” and “machine assembly” they are working at the same task level belonging to “distribution center”, but “ground design” need to be done before the assembly of the machine can be initiated.
6.1.3 WBS can indicate the paths and objects for communication

![Diagram](image)

**Figure 6.1: Communication Based on WBS (Resource: Owned)**

After the tasks are identified during the project planning, the project has a good communication guide which could be shown by following the tasks structure. It means there need to be communication between tasks as the project is moving on. The figure above 6.1 shows a communication map we developed from literature study and the work breakdown structure and project communication work. As we knew before, work breakdown structure is mainly used as a support for project management working with task allocation. From our study of the real operated case project we have seen there are always many unpredictable events or changes that happen. Communication between project members in time is necessary for project to deal with such kind of unpredictable things and to avoid delays or mistakes. When breaking down work in a project, the study shows the necessity to ask questions like “How can we communicate with the right persons and in right ways?” WBS shows us the paths for communicating efficiently. By following the shortest paths shown in Figure 6.1 then you can find an easier way to do communication and reducing task delays or misunderstandings.

**6.2 Problems happened in the project during using WBS**

In the empirical study, we found there are no capital problems for the small project as the investment was done with the support of three different companies. There are, however, two main problems existing during the project as being processed. First, the delay problems are seriously influencing the project procedure to achieve the objective and how it could be finished by the end of July 2012. The second problem is the failure
of task deliverables. The final objectives can only be achieved based on the successful achievement of all its previous sub-tasks. That is a step by step achievement, if any one of the sub-tasks fails or delays it will directly delay the final goal of the project. After considering our theoretical and empirical information, we conclude that the two main problems are mainly caused by a critical problem – the lack of efficient communication while performing the tasks!

**6.3 Solve the communication problem by using WBS**

We concluded 4 steps for the project that could help project managers to solve problems of WBS and communication by turning to the findings of the case project. Based on a good identification of WBS, the project can solve its communication problems by following:

1. *Clearly identify the importance of WBS and the relationship between tasks in WBS, no matter if these are in the same or different levels.*
   
   If there is a clear WBS concept in the project, everyone knows the responsibilities and roles they are acting in accordance to in the project. That is a basic requirement for all to handle communication during the project is running.

2. *Clearly identify the possible channels for communication based on the WBS.*
   
   For example in the original WBS, and to our knowledge, there are no lines between elements at the same level. We concluded a need to consider communication in WBS as a shortage in previous theoretical studies. It can help to improve communication gaps between tasks at the same level in WBS. It will be useful in projects to reduce the cost of communication causing time delays.

3. *Use the shortest path for communication to avoid too complicated communication channels.*
   
   When communication is required, the shortest paths can be identified by project members if they know the channels in WBS. In this study we have combined WBS with a general communication models.

4. *Keep equal rules for order makers (commonly senders) and receivers in the communication process.*
   
   When project managers have identified efficient channels for communication project managers need to support equal communication rights between staff members at different levels. This might have influence on the need to change the “order style” into “discussion style” through using meeting and other communication tools such as phone, email, and other chatting tools on internet. The tasks can only be defined through the exchange of opinions and that are not only pure decision making.
6.4 Contribution

This study shows a practical need to improve communication in small company projects working with WBS. We suggest a managerial method for companies working with projects facing the similar problems of internal communication. In project management companies commonly follow the general tree-structure. The more practical contribution of this study is to help project managers experience similar problems as in the case, to identify task and communication problems by paying attention to the hierarchical layout of a project and how different levels of the project step by step is working to reach the different task goals.

The theoretical contribution of this study is that we cannot find research combining the need of communication while using WBS. Hence, our study contribute as is show the importance to include communication in WBS in a new WBS communication model which can be used for research of internal communication as well as for project management. This study is not only showing the need of individual communication or project management; it also shows a model which is indicating both vertical as well as horizontal path and direction of communication within project management.

6.5 Further research

If the further researchers want to continue this project, we suggest two interesting proposition as following:

1. Due to the case project is ongoing and explored in communication and WBS aspects, further researcher may consider more depth about this research direction of the gap between communication and implementing WBS.

2. Based on the different culture of management in different, it will be interesting to seek and show the different communication ways which are happening during a project is going by using WBS in different culture background.
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**Articles:**


Internet:


8 Appendixes:

8.1 Appendixes 1 Questionnaire

Gender: Women Man

Age: 25 to 35 35 to 45 45 to 55

1. What kinds of methods are used to communicate with supervisor and colleague?
   a. Nonverbal
   b. Verbal
   c. Both of them

2. When your manager or supervisor asks you to do something which you don’t understand:
   a. Just get on with things and do your best
   b. Ask a colleague
   c. Ask your manager or supervisor

3. Does the supervisor or manager open to your ideas?
   a. Yes
   b. No
   c. Have no idea

4. Supervisor communication frequently.
   a. Yes
   b. No
   c. Have no idea

5. The company’s communication makes me feel like a vital part of it.
   a. Yes
   b. No
   c. Have no idea

6. Supervisor knows and understands the problem faced by me or other his or her subordinates.
   a. Yes
   b. No
   c. Have no idea

7. The supervisor can recognize my efforts.
   a. Yes
b. No

c. Have no idea

8. If you have some problem, do you know who the right person to report is?
   a. Yes
   b. No
8.2 Appendixes 2
Answer of questionnaire

**question 1**

*comprehension of order*

- totalement understand
- a little confuse
- I don’t understand

**question 2**

*Employee initiative*

- No asking
- Ask colleague
- Ask supervisor

**question 3**

*Atitude toward idea*

- open
- not open
- I don’t know