Faculty of Engineering and Sustainable Development

Innovation Management in Temporary team
- Case study on Mobilized RFID Identification System

Ying Liu & Chuanxi Qin

June 2011

Management of Logistics and Innovation

Supervisor: Dr. Ming Zhao
Abstract

The thesis research innovation projects in temporary teams. The differences between stationary organization and temporary project teams lead the distinctions of their performances. Especially in innovation projects, many problems exist and are difficult to manage. Many innovation projects are operated by temporary teams; very few of them are successfully completed on time with good quality and cost as planned. The purpose with this study is to find out how innovation projects in temporary teams can be successfully managed.

The research approach used is case study of one innovation project in a temporary team and additional data collection has been done with a survey. The case study describes an innovation project in a temporary team in China and the survey covers 43 persons with experience of innovation projects in temporary teams. An innovation process model by Bessant and Tidd (2007) is used as reference model but is found not suitable for temporary teams because of its specific mission with short life cycle and weak relations and uncertainty. With the combination of theoretical and practical knowledge, and to fulfil the requirements of temporary project teams, some changes are made on the original innovation process model. A new model named TT (Temporary Team) Innovation Process Model is proposed to support the innovation project management and operation process of temporary teams. Hopefully this model could be supportive for temporary teams who work with innovation projects.

Key words: Innovation Project Management, Temporary Team
Acknowledgements

We would like to express our respects for our supervisor Dr. Ming Zhao. It is him who provided the project positions for us and gave us opportunities to research on our topic. He has been supporting us with his wide opinion, prudent teaching attitude and profound theoretical knowledge. We also need to express our gratitude for our examiner Lars Löfqvist. He gave us helpful suggestions for our reference and questionnaire. With his scientific writing teaching and conduct, we completed the reference and questionnaire in a better way. Thanks to all the people in the project team and also the participants who helped us with our survey. Thanks to our families who have been supporting us all the way.

The possible readers and target group of this thesis are temporary teams who are involved in innovation projects. And we hope this thesis could provide some advices to your work.

Gävle, June 2011

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1. Introduction

In this chapter, the background of the research, the purpose of the study is given, and the information about the case study is presented.

1.1. Background

Innovation management has been, however, discussed as one of the most significant issues when concerning about growth and survivability of a company, and the professional knowledge sharing brought more desires to managers (Bessant & Tidd, 2007). The technological innovation projects are quite tricky to manage and implement because of the high risks with few successes. Under normal circumstances, the high risks projects are held in the firms which have their organizational culture and stable teamwork atmosphere to manage with the technological innovation. And the innovation process models such as Innovation process model by Bessant & Tidd (2007) could be supportive in those cases. Furthermore, some technological innovation ideas were emerged from groups of unprofessional people who have different background and never worked together before; this kind of temporal project teams cannot be managed as it is done in normal companies. With no strategy and organizational culture but the desire of creative and multiple skills, the temporary team might meet more problems within the technological innovation processes.

The 9th ICRMS (International Conference on Reliability, Maintainability and Safety) conference will be held in China in June 2011, to which many specialists from all over the world and our supervisor Dr. Ming Zhao will attend. With the aim to secure the conference, an innovative idea that applies the RFID (Radio Frequency Identification) technology to the personal identification is advocated by a new-
established group. The conference committee never had any experiences with RFID technology or innovation management. RFID technology is one of the most popular technologies to operate the internet of things and it has been widely used to control the objects in such fields as inventory and transportation management. The Mobilized RFID Identification System is a technical innovation which gives expression to the advantage of the credentials management which is about personal identification. To apply RFID technology for personal identification in the conference is launched as an initiative project of the Mobilized RFID Identification System. The system can provide the solution of collecting in the personnel information, credentials production, checking, and personnel information management. With this idea, a temporal project team is established to operate this technological innovation project. The innovative project management strategy could be built on the practical experiences and previous research; moreover, these analysis and theoretical research could help with the future project management development (Söderlund, 2003). Hence, we choose the initiative project of Mobilized RFID Identification System as our research case to join the real world project. In this project, the condition is quite different because the 9th ICRMS committee is temporary; we would analyze practical problems and find out how innovation projects in temporary teams can be successfully managed.

While this innovative project is processing, both effectiveness in project implementation and strategy of management are important to take into consideration. This technological innovation project is implemented by a temporary team, yet the original Innovation Process Model by Bessant & Tidd (2007) requires the innovative organizational vision and some other elements which the temporary team is not able to organize in a short time, hence, it is considered to be less suitable for the project.
We are trying to propose a reasonable method to improve the management of technical innovation project in temporary teams.

1.2. Purpose

As mentioned before, it is difficult to manage technological innovative project and complete it on time with good quality and cost as planned; many unexpected factors can influence on the success of temporary teams. The ideal innovation process model could no longer be used in this case because of the differences between stationary teams and temporary teams. Hence, we would find out the differences between stationary teams and temporary teams. With the comparison and analysis of the success factors and failure factors, we would find a reasonable model for technological innovation projects within a temporal project team.

Based on the technological innovation project, the purpose of this thesis is to find out how innovation projects in temporary teams can be successfully managed?
2. Methodology

This chapter aims to describe the approaches which are used in the theoretical study and case study in this thesis.

2.1. Research method

In the area which observes and measures, the quantitative methods trend towards to be related with natural science (Murray & Hughes, 2008). Quantitative research often includes figures, ratio and statistics. It is the method in which the data you gather and analyze include the accurate measurement of phenomena and the implementation of statistical analysis (Murray & Hughes, 2008). It concerns about numbers and anything that is quantifiable, such as measuring opinion from people, their mood and modes of thought (Shields & Twycross, 2003). Surveys and statistical techniques can help us to carry out quantitative research and accumulate the quantitative information. Moreover, the quantitative information can help us to understand the situation of the real case and get the distinct data as our research foundation.

Qualitative research is related to in-depth exploratory studies and it try to know and interpret the phenomena according to the meanings which person bring to them (Biggam, 2008). Qualitative research is less focus on figures and accurate measurement but more focused on the meaning of data (Murray & Hughes, 2008). It trend towards to be less exact and contain a more subjective understanding of reasons, thinking and phenomena which is observed (Murray & Hughes, 2008). The case study is the main method of our thesis to carry out the qualitative research. The case study is concerned about how a specific group of people behave in a specific context. It can give clear idea of the whole case and give us a good understanding for the research.
The literature review can provide the theoretical basis which relates with our research question to help us state the research question.

In this thesis, we use both qualitative and quantitative research to complete the whole study. The qualitative research offers the foundation for the quantitative research and provides the distinct data to ensure the authenticity of our research. These two methods insure the reliability and validity of our study.

### 2.2. Research structure

Figure 1 shows the whole research structure of our thesis and provide a framework for our thesis.

![Research structure diagram](image-url)

*Figure 1 Research structure*
2.2.1. Research area confirmation

In the stage of confirming the research area, we searched the information on the internet and discussed with our supervisor. The 9th ICRMS inspired us with the interests in innovation project management. In this conference, Mobilized RFID Identification System as the technical application, it used for personal identification to ensure the security. So we decided to carry out our research in the area of technological innovation project management.

2.2.2. Research question determination

After confirming the research area, we found the material which is about the conference to have an in-depth understanding. The project team which is organized temporarily is the characteristic of this project. Experts from different fields staffed this temporary team. Because of the novelty of the innovation project and the temporary team organization, there is a potential risk for problems and original model is not to enough to satisfy this situation. Hence, the research question of thesis is to focus on the technological innovation, to find out how to manage the innovative project successfully in a temporal team with a suitable method.

2.2.3. Data collection

This study used both qualitative and quantitative research. The qualitative part is when we joined the actual project and the surveys and statistical techniques can help us to carry out quantitative part. We used the questionnaires as the main data collection method.

To do a literature review is good for summarizing the theoretical foundation for research. In the literature review stage, there are three main areas covering the
research: project management, innovation management and temporary team management. Through the literature review, we introduced the important concept and original model of these three areas so that we can have a clear thinking process of our thesis. At the same time, the concept and original model of the three main areas can help us to find the successful and failure points of technological innovation projects. We can also use these points to improve the original theoretical model which found in the literature review, and the literature review can give us an in-depth understanding for our research subject and purpose.

Due to the two authors of the thesis joined the actual case project; we did a survey with project members. We prepared the survey with a lot of discussions of problems in innovation projects in temporary teams together with discussions of the purpose of our study. They gave us several perspectives on the purpose.

In the stage of designing and implementing the survey, we designed questions to find out the real situations which are about the original innovation process model in the project. After designed the questionnaire, we invite the team manager, project staff and persons who have relevant experience to implement the survey to ensure the reliability of the data.

2.2.4. Data analysis and model modification

Through the literature review and survey, we got the data of our research. Literature review provides the theoretical framework and original model for the approach of quantitative research and it gives the theoretical foundation for our research. Statistical analysis software as an aid helped us to summarize, conclude and analyze the data which we got in the survey.
Through the chart, 43 persons took part in the survey. Some questions only 41 persons answered. We believe this is a normal situation in statistics and this situation reflects the authenticity and reliability of our survey. In order to avoid that this situation influence the accuracy of our data, we used the average number method to reduce the influence. Through the average number method, we can also cut down the influence of the subjectivity and make the final results of the survey more real and reliable. At the same time, we used the reliable data to compare with each question accurately.

The data which was provided for literature review and the survey helped us to find the mismatch between the original theoretical innovation process model and the real situation. According to these problems, we found weakness of the original theoretical innovation process model. On the basis of the original theoretical model, we added the conclusions from our empirical study to create a new model and make the new model suit technological innovation project management within temporary teams.

2.3 Validity and reliability

This thesis summarized the real experiences combine with the theoretical knowledge; and builds a model for the other temporary team who will involve in the innovative project in the future; in order helping them with their further work. The project is a typical case study, yet there are still lot of limitations. Hence, we would collect more data to enhance the validity and reliability of the research.

The validity of the research is about choosing a suitable research strategy to carry out the data collection and analysis (Biggam, 2008). Because of the two authors of the thesis joined in the actual case project, the survey helped us to validate our thoughts and findings from the case project and help us to avoid subjectivity and increase the whole study´s objectivity. The questionnaire as a main method of the quantitative
research provides a series of real data for the part of the data collection.

The reliability of the study pays attention to the need for a record of evidence (Biggam, 2008). In order to ensure the reliability of the thesis, we put the questionnaire in appendices. There are 43 persons join in the survey. For purpose of the accuracy of the survey, the 43 persons who have experience of team work are invited to fill in the questionnaire. We find them from staff participating in this conference and the people have experience of team work and worked in a temporary team. These people can give us reliable answer for our question and ensure the reliability of the survey. Because of the two author joined and follow the process from inside, it may affect the objectivity of the result. The scientific statistical methods such as average method and the statistical analysis software can help us to avoid this situation. We put the statistics data in the table and these statistics tables can reduce the subjectivity of us and increase the reliability and objectivity of the thesis.
3. Theoretical framework

In this chapter, it will present three important theoretical concepts from literature study: Innovation Management, Project Management and Characteristics of Temporary team.

3.1. Innovation management

Innovation is the particular method of entrepreneurs, the means by which they take advantage of changes as an opportunity for a different business or service and it is capable of being presented as a discipline, capable of being learned, capable of being practiced (Bessant & Tidd, 2007). Today, innovation has become a critical issue for organizations to survive in the long-term competition (Cobbenhagen, 2000).

3.1.1. What is innovation management

Innovation could be understood as the whole process from the initial idea to be used in practice, for instance, the new products service or produce process. Innovation management has been seen as imperative, which associated with the future growth and survival of companies (Bessant & Tidd, 2007, p.4). Nowadays, types of the innovation have been expanded into four types: Radical component innovations, Incremental innovations to existing technologies, Radical system innovations and Next-generation technology innovations (Gaynor, 1996). Bessant & Tidd (2007, p.13-15) presented four dimensions in the innovation space, and each of them has two segments which are incremental and radical:

- Product: is to make improvements or completely new changes in product/ service
- Process: is to make partial or entire new changes in the process
- Position: is to enlarge or explore new market with the position
• Paradigm: is to change or reform the structure of the business model

In practice, when changes are made, the innovation dimension does not exist individually, but always affects other ones.

Technology plays the increasingly crucial role in this technological world. The word “technology” usually consists of various images and generally refers to what has been described as the “high-tech” industries (Gaynor, 1996). From this standpoint, technological innovation is the foundation for business success (Gaynor, 1996) and in many industries technological innovation is now the most vital driver of competitive success (Schilling, 2005). With the approach of technological innovation, new industries gradually replace the existing ones (Cooper & Schendel, 1976). Inventions are viewed as the initial step of the technological innovation process. The criteria for success of inventions and discoveries are technical rather than commercial (Burgelman et al., 1996). Technological innovation is used to refer to the process through which technological advances are produced. Technological innovation has been considered as a process that generates information from information but also knowledge which reverts exclusively to the innovator (Nieto, 2004).

3.1.2. Innovation process model

Figure 2 shows the model of Innovation process presented by Bessant and Tidd (2007). We can see there are three core phases which are generate select and implement. The proactive linkages, strategic leadership direction and deployment and innovative organization are three contextual factors along with the three phases (Bessant & Tidd, 2007).
There are several stages from the innovative idea to innovation; while it processing, many important issues like problems should be solved, knowledge sharing and so on.

- **Proactive linkages**: which means to link all the related actors from internal and external, and absorb the information in advanced and be prepared for the next stage.

- **Generate innovation possibilities**: classify the information and collect out the useful ones, generate the significant together and find out the potential possibilities according to innovation.

- **Strategically select from those options**: select the options strategically, with the considering about the development advantages of the innovation and the capability of the company.

- **Implement, make innovation happen**: with the chosen target, there are several stages from the innovative idea to innovation; while it processing, many important issues like problems should be solved, knowledge sharing and so on.

- **Strategic leadership direction and deployment**: apply the strategies through the whole innovation process, to reduce the risks and uncertainties of the innovation.

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**Figure 2 Model of innovation process (Bessant & Tidd 2007)**

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• Innovation organization: the organizational culture should be innovative and offer the facility atmosphere and structure for innovation (Löfqvist, 2009 p.10-11; Bessant & Tidd, 2007, p.16-20).

3.1.3. Innovation and knowledge management

With the effective knowledge management, the innovation performance of an organization could be improved because of the appropriate method to manage the potential resource (Ndlela & du Toit, 2001). Nonaka and Takeuchi (1995) presented the knowledge creation is basically depends on individuals and should be supported and generated by organization. Knowledge could be identified into two types, which are Explicit knowledge and Tacit knowledge. Explicit knowledge means the information which could be expressed clearly and easily understood in the terms of textual, numerical or graphical. The tacit knowledge could not be transferred and communicated in the explicit way, for instance, the personal experiences (Bessant & Tidd, 2007, p.188). By exploring the underlying links between individual to organization and tacit to explicit, a four cycle’s conversion of knowledge is presented by Nonaka and Takeuchi (1995):
As we can see from Figure 3, Socialization is the knowledge sharing from tacit to tacit, such as the socialization and community of practice, the experienced knowledge shared between the individuals and organizations who have spent the same time in the workplace; Externalization is the tacit knowledge could be transformed explicitly by a process of conceptual formulation and transformation, the new knowledge is allowed to be built on the experienced knowledge; Combination means the explicit knowledge to a more systematic explicit knowledge which the sources are collected shared combined within the organizations or communication networks; Internalization is from explicit knowledge to tacit knowledge, which is traditional learning method in an organization, the individuals or groups learn from explicit knowledge to the practical exercises such as the trainee is learning from the documentation and also the enrich the experimental knowledge (Nonaka & Takeuchi, 2000; Bessant & Tidd, 2007, p.190).

In knowledge creation and conversion, a certain context is needed for individuals. The knowledge could be created during the interaction between individuals and
environment. Hence, the shared context which is not just a physical space but a specific space and time, it should support the knowledge sharing creating and utilizing in the organization (Nonaka & Takeuchi, 2000).

3.1.4. Organizing for innovation

Once innovation, as a concept, has been received in a strategic rank and the practical implications of having an integrated innovation procedure or system need be managed. An effective point of departure is to recognize the origin of innovations and how they can be gathered and filtered (Derry, 2003). The flexibility is always proposed for organization, to have high capability to take the risks and different levels of freedom in order to support the innovation (Sundstrom & Zika-Viktorsson, 2009). Innovations and ideas can come from any part of an organization. It does not limit to the R&D department or Marketing. As figure 4 shows, the green parts stand for the sources from internal to the organization and blue external and red via third parties. The sources of innovation are numerous and various but they should be gathered, coordinated and handled as a source of valuable information and are important to the future of an innovative industry (Derry, 2003).

![Diagram of Innovation Pipeline](image)

*Figure 4 The innovation pipeline (Derry, 2003)*
An innovative organization should set the willing to innovate as the basic vision and the leadership should focus on exploration about the organizing and products. The organizational structure should provide balance the different work approaches with the creative work climate. The organization should manage the innovation as collective programme with the effective teamwork, and at the same time to make the individuals to promote the innovative work. The cross-functional teams could have the extensive communication internally and externally, and involve in the innovation actively (Sundstrom & Zika-Viktorsson, 2009).

### 3.2. Project management

The definition of the project is a provisional work which creates a unique product, service, or result (Project Management Institute, 2004).

With the purpose of fulfilling the demand of project, the concept of project management is brought forward as the exercise of knowledge, skills, tools and techniques which is about project activities (Project Management Institute, 2004, p.20). Project management is the implementation of a collection of facilities and skills to achieve a sole, sophisticated, one-time task with the limits of schedule, cost and quality (Atkinson, 1999). Through the implementing and comprehensiveness, there are five major project processes: beginning, scheduling, implementing, supervising and possessing, and ending. The project management would be accomplished and the project manager who is responsible for carrying out the project purpose is necessary in the project management (Project Management Institute, 2004, p.22). The nine distinct aspects are presented in the project management, which is the management of scope, cost, schedule, risk, communication, human resources, procurement, quality and integration (Badiru, 2008, p.40).
3.2.1. Integration management

The great masses of experienced project managers are aware that there is no unitary method to control a project. In the background of project management, integrative involves the specialty of accordance, coalition, joint, and integrative activities. It is vital to project achievement, favourably filling the requirement of client and other stakeholder demands, and the expected value of management. Integration management is deciding about where to collect resources on each day, the forecast of possible problem, and handling with these problems before the problem come to vital progressively, and adjust the assignment of whole project increasingly (Project Management Institute, 2004, p.77). In the process of achieving the project purpose, the major purpose of the integration is focusing on the efficiently become one flesh among the each part of the project management (Project Management Institute, 2004, p.78).

3.2.2. Scope management

Project Scope Management involves the procedure needed to assure that the overall the work requirement of project, and the work demand of achieving the project resoundingly. The major purpose of Project Scope Management is paid attention to define and manage what is and is not contained in the project (Project Management Institute, 2004, p.103). Scope management appoints the project permit, project programmed, and the connection to other items running in a system (Badiru, 2008, p.33).

The crucial area to precise and achieve scope definition for an Information Technology project is due to Nickolett (2007):

• Confirm the actual desire of project.
• Confirm the project good enough to have application knowledge of working procedure, operation flow, and dependencies.

• Confirm the utility systems good enough to have application knowledge of what is the purpose of project, how the project relationship with other systems, how the project effect on final customer, and what the all kinds of dependencies are.

• For the detailed WBS, it specifies the difference between the position you are and the position you want to be. Face to this situation, it should be defined what acquire to be achieved, and what is not needed to achieve in the work stage.

3.2.3. Time management

Time is the infinite not recycling merchandise (Badiru, 2008, p.67). For a project manager, time is a limited for the project, and efficient time control management rules should be introduced to make the time a resource and the crux of efficient project management is methodical time management. The project manager needs to handle his own time; otherwise the project manager will not handle everything on the project (Kerzner, 2009). Project manager send stuff to the training course of time control and constantly drum in the crucial of achieving report and other project working timely (Badiru, 2008, p.67). Project time management involves the procedure needed to achieve timely finish of the project and it involves the six areas (Project Management Institute, 2004, p.123):

The first area is Activity Definition which is recognizing the particular schedule working that require to be implement to outcomes of the miscellaneous project.

The second area is Activity Sequencing. It recognizes and documents relativities among schedule working.
The third area is Activity Resource Estimating which is about evaluating the style and a plenty of resources needed to implement on each schedule working.

The forth area is Activity Duration Estimating which involved to measuring the amount of work period which will be require to finish an single schedule working.

The fifth area is Schedule Development. It divides into working consecutiveness, continuance, resource demands, and schedule limits.

The sixth area is Schedule Control which is about managing variation of the project schedule.

3.2.4. Cost management

Project Cost Management is the same crucial to overall corporations, despite of size (Kerzner, 2009). In order to the project is able to be achieve inside of the approve budget, Project Cost Management contains the procedures comprised of planning, evaluation, budgeting, and handling costs (Project Management Institute, 2004, p.157). The Project Management Book of Knowledge (PMBOK) provides an overview of the three process of the Project Cost management (Project Management Institute, 2004, p.157):

The first process is Cost Estimating, which is about exploiting the approximation of the costs of the resources which is required to achieve project working.

The second process is Cost Budgeting. It involve that gather the estimated costs of single working or work packages to build a cost bottom.

The third process is Cost Control, which is about affecting the elements which create cost variances and handling changes to the project budget.
Project Cost Management is mainly focus on the cost of resources which is required to achieve the schedule working. While the Project Cost Management ought to view the influence of project decisions on the cost of utilization, operation activity, and encourage the manufacture, service, or outcome of the project. From the extended view of Project Cost Management, it is always named life cycle costing. Combined with value engineering techniques, the life cycle costing is able to ameliorate the decision and the efficiency of the project deliverable (Project Management Institute, 2004, p.157).

3.2.5. Quality management

The concept of the quality has been a change during the past twenty years and the reforming happens not only in the quality of product, but also in the quality of the leadership and project management. Because of the quality is defined by the client, developed organizations lightly accept that they could not precisely define quality (Kerzner, 2009).

The quality defined by Kodak is products and services which are considered to satisfy or overcome the requirement and prospects of the client at a cost which stand for the prominent value (Kerzner, 2009). Masses of organizations think about quality more as a process than a product and it is a gradually improving procedure where experience is used to improve prospective products. The quality services towards to keep up existing client, win back lost client and win new client (Kerzner, 2009).

Figure 5 shows the five quality principles of Kodak (Kerzner, 2009).
Project Quality Management procedure contain overall the working of the implementing organization that conclude quality policies, purposes, and responsibilities so that the project can fulfil the requirements for which it was undertaken. Through the policy, regulations, and quality planning, quality assurance and quality control, Project Quality Management performs the quality management system and the Project Quality Management involves the three processes (Project Management Institute, 2004, p.179):

The first process is Quality Planning, which is about confirming which quality standards are involved to the project and concluding how to fulfil the standards.

The second process is Perform Quality Assurance, which is about implementing the planned, scientific quality working to make sure that the project use overall processes required satisfying demands.

**Figure 5** Kodak’s five quality principles (Kerzner, 2009).
The third process is Perform Quality Control, which is about supervising particular project outcomes to determine whether they obey quality standards that are relevant and confirming method to exclude cause of unsatisfactory capability.

### 3.2.6. Human resource management

Project Human Resource Management involves the procedures which structure and control the project team and the project team is consist of the person who arranged for assignments and responsibilities for achieving the purpose of the project. It is always to say the assignments and responsibilities being arranged, the stuff needed to be contained most of the plan and decision making of the project. The team members who involved the project early can enhance the professional knowledge in time of the planning procedure and reinforce compliance to the project. The style and amount of the project team members who can be related to as the project’s staff always transform along with the project development (Project Management Institute, 2004, p.199).

The project management team which can be named the quick, manager, or leadership team is a sub-class of the project team and has the responsibility for project management working such as planning, handling, and finishing. The whole team or the project executive who manage individually shared the responsibilities of the project management for lesser projects and the entrepreneur works with the project management team, especially helping with event such as project funding, clearing the extent of the problem, and the effecting for others toward to profit the project. The Project Human Resource Management involves the four procedures (Project Management Institute, 2004, p.199):
The first is Human Resource Planning, which is about confirming and documenting project roles, responsibilities, and creating the project member management schedule.

The second is Acquire Project Team. In this procedure, it is acquiring the human resources which are required to achieve the project.

The third is Develop Project Team, which is about enhancing the capacity and reciprocity of project stuff to increase the project efficiency.

The forth is Manage Project team. In this procedure, it is supervising project’s stuff efficiency, offering feedback, analyzing problems, and adjusting changes to increase project efficiency.

3.2.7. **Communications management**

Project Communications Management is the Knowledge Area which is about gather, allocation, storage, recovery, and final settling of project information and the Project Communications Management procedures offer the key area among person and information which are needed for triumphant communications. Project executives are able to spend an unreasonable number of times communicating with the work group, stakeholders, client, and entrepreneur. Each of the project member included in the project need know how communications influence the project as an integer (Project Management Institute, 2004, p.221). The Project Communications Management involves the four procedures:

The first is Communications Planning, which is about the concluding the information and communications which are required to the project stakeholders.

The second is Information Distribution. In this procedure, it is making required information available to stakeholders in well-timed method.
The third is Performance Reporting, which is about gathering and portion performance information and it involves status report, advancement survey, and predicting.

The forth is Manage Stakeholders, which is handling communications to fulfil the demand of and solve problem with project stakeholders. (Project Management Institute, 2004, p.221).

3.2.8. Risk management

Due to Maylor (2010) there are two definitions of risk: The probability of stomach damage and losing (Maylor, 2010).

In determination internal in plans and probability of something occurring which can influence the future of completing business or the purpose of the project (Maylor, 2010).

Project risk is an uncertain event or situation that, if it happens, has a good or bad influence on the project target, for example time, cost, extent, or quality and a risk will have one or more reasons and influences if it happens (Project Management Institute, 2004, p.238).

Project Risk Management includes the processes concerned with conducting risk management planning, identification, analysis, responses, and monitoring and control on a project; most of these processes are updated throughout the project. Project Risk Management involves the procedures focus on directing risk management planning, recognition, analysis, reaction, and supervising and handling on a project and majority of these procedures are renovate throughout the project. The purposes of Project Risk Management are to improve the possibility and effect of positive events, and cut down
the possibility and effect of events which is disadvantage of project (Project Management Institute, 2004, p.237).

The Project Risk Management involves six procedures (Project Management Institute, 2004, p.237):

The first is Risk Management Planning, which is about confirming how to approach, schedule, and handle the risk management working for a project.

The second is Risk Identification. It is deciding which risks can influence the project and documenting their feature.

The third is Qualitative Risk Analysis, which is about evaluating and connecting their possibility of emergency and influence to prioritize risks for succeeding further analysis or activity.

The fourth is Quantitative Risk Analysis, which is about analyzing the influence of whole project purpose of recognized risks by figure.

The fifth is Risk Response Planning. This procedure is about developing choices and activities to improve opportunities, and to decrease risks to project target.

The sixth is Risk Monitoring and Control, which is about tracking recognized risks, supervising remaining risks, recognizing new risks, managing risk reflect schedules, and assessing their influences throughout the project life cycle.

3.2.9. Procurement management

Project Procurement Management involves the procedures to buy or need the products, service, or outcome demanded from external the project team to implement the activity. Project Procurement Management involves the contract control and change
handle procedures needed to manage contracts or purchase orders which is issued by authorized project members and it also involves managing contracts is issued by an external project team which is needed the project from the implementing project team, and through the contract to ensure the implement of the contractual obligations (Project Management Institute, 2004, p.269). The Project Procurement Management Process involves six procedures:

The first procedure is Plan Purchases and Acquisitions, which is about confirming what to buy or needed and confirming the time and method to purchase.

The second procedure is Plan Contracting, which is about documenting products, services, and outcome demands and recognizing possible bargainers.

The third procedure is Request Seller Responses. It is about acquiring information, quotations, offer, or proposal which is suitable.

The forth procedure is Select Sellers. It is about examining bids, picking up among possible sellers, and negotiating contract.

The fifth procedure is Contract Administration, which is about handling the contract and connection between the purchaser and vendor, examining and documenting how a seller is implementing or has implemented to build necessary corrective actions and offer a foundation for prospective connections with the seller, handling the contract-related variation.

The sixth procedure is Contract Closure, which is about achieving and solving each contract, involving the decision of open project, and ending each contract which applicable to a project stage. (Project Management Institute, 2004, p.269)
3.3. Temporary team

Some project teams are organized in order to launch some special tasks in a certain time; we call them temporary organizations (Lundin & Soderholm, 1995). Temporary project organization should be regarded as common as other organizational structure and as an important part of economic society today (Lundin & Soderholm, 1995; Lundin & Steinthorsson, 2003). Two kinds of temporary organization were defined by Modig (2007), one is “pure” temporary organization which is only set up for one project or task; the other one is the stationary organization which has permanent organizations as “parents”. Pure temporary organization has better ability than stationary organization to take the complexity and variation of the task. The uncertainty, time limitation or input and output might pressure on the organizations from stationary to temporary (Modig, 2007). The stationary organization can involve in the tasks with the resources knowledge and well-established structure which supported from parent organization (Modig, 2007; Turnera & Mullerb, 2003; Waard & Kramer, 2008). There are still more distinguishes between these two kinds of temporary organizations, but in this thesis we talk about the temporary organization in general.

3.3.1. Characteristics of temporary team

The basic concepts of temporary project team are time task team and transition. Not as the permanent organization, the time is limited in the temporary organization thus the time flow is cut out. The task is the main reason for the organization creation which is emphasis on goals. The project team has the inner relations and also the surrounding environment (Lundin & Soderholm, 1995). The transition is the aim of
the team to achieve. These four concepts are related to each other, as the Figure 6 shows.

![Figure 6 Concepts of temporary organization (Lundin & Soderholm, 1995)](image)

With these four concepts, the action is used to support the organizational implementation. Different resources should be allocated in the sense of task and time. The time limitation is set for the organization, and the natural think of this period is starting from initiation and ending with evaluation. (Lundin & Soderholm, 1995; Lundin & Steinthorsson, 2003) The certain action should be undertaken for each stage with the time limit of the temporary organization. The task could be simplified and handled in order to cope with the time limitation (Lundin & Soderholm, 1995).

The task-oriented temporary organization is formed by the individuals who worked in different team before; organizational culture and former experiences could affect the relationships in the temporary team (Lundin & Soderholm, 1995). Thus the relationship is weaker than normal because of the short term employment and work relations (Modig, 2007). A temporary project team has the unique project process which no previous work to repeat, and the team is more flexible to respond the uncertainties in the project process (Turnera & Mullerb, 2003). The temporary organization cannot be regarded as self-controlled system; it is neither predictable nor
stable (Lundin & Steinthorsson, 2003). The commitment motivation and ability of individuals are the factors which temporary organizations depend on. Hence, the team needs to be creative and combine with the variant experiences from members for the action of each phase (Lundin & Soderholm, 1995).

The specific task mission provides the unambiguous sign to make right choice for actions and give the clear aim for team member to focus on. Somehow the organizational environment is with uncertainty, the commitment and supervision could be simple with the clear goal (Engwall & Svensson, 2004).

Table 1 lists some characteristics of temporary team which mentioned before:

**Table 5 Characteristics of temporary team:**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task-oriented, specific mission</td>
<td>Lundin &amp; Soderholm, 1995; Engwall &amp; Svensson, 2004</td>
</tr>
<tr>
<td>No organizational culture and weaker relationship</td>
<td>Modig, 2007; Lundin &amp; Soderholm, 1995</td>
</tr>
<tr>
<td>Varian experiences, work process</td>
<td>Modig, 2007; Lundin &amp; Soderholm, 1995</td>
</tr>
<tr>
<td>Flexible and creative</td>
<td>Modig, 2007; Lundin &amp; Soderholm, 1995; Turnera &amp; Mullerb, 2003</td>
</tr>
<tr>
<td>Not predictable or self-controlled</td>
<td>Lundin &amp; Steinthorsson, 2003</td>
</tr>
</tbody>
</table>

**3.3.2. Efficiency factors in temporary project team**

The environmental factors of temporary organization consist of time context, geographical context, man-made context and conceptual context. These contexts are the challenges for the organization and influence on their performance (Lundin &
Steinthorsson, 2003). The stable work environment and required skills and peaceful relations between work roles could reduce the communication risks and conflicts in temporary organizations (Modig, 2007).

A temporary organization aims at the mission with time-related condition and creates the non-routine process to complete the task (Pachendorff, 1995). Both the individual’s ability and leadership provide the main driving forces to complete the task on time (Engwall & Svensson, 2004). The team more focus on the individuals’ actions skills and abilities than the normal organizational structure (Modig, 2007; Engwall & Svensson, 2004; Pachendorff, 1995). With the time limitation, some team members might feel tension with the unreasonably short work time and speed up with their work, some team members might treat the time horizon as something to be considered in the future and not work effectively but with laid-back attitude (Pachendorff, 1995). The short term employment and time limitation could affect the motivation and behaviours of members who does not expect on the future opportunities (Modig, 2007). If team members saw the benefits for their career, they will have more motivation (Engwall & Svensson, 2004). The commitment should be developed to motivate the team members (Engwall & Svensson, 2004; Turnera & Mullerb, 2003). The leaders are acted as three roles in the temporary team: initiator, scheduler and integrator (Yoo & Alavi, 2004). The leadership needs task-oriented and also focus on human relations, not only relations of inner organization and also with the parent organization or partners (Yoo & Alavi, 2004; Waard & Kramer, 2008). They should be aware of the communication and its reliability is important for the team performance; while providing the information or structures to balance the organizational atmosphere and keep the knowledge share (Yoo & Alavi, 2004).
The actions and decision making are affecting each other, the decision could lead the actions and the actions might affect the later decisions because the organizational behaviour (Lundin & Soderholm, 1995). The organizational culture and commitment are two other factors which influence the action and also the relations (Lundin & Soderholm, 1995; Modig, 2007). The sufficient resources are required for each action; the temporary team which has parent organization usually rely on the structure and resources of parent organization (Waard & Kramer, 2008). The integration of resources are needed, and project manager should execute with the proper principal (Turnera & Mullerb, 2003). The temporary team is lack of natural learning, thus the knowledge system should be built in the organization to link the individual knowledge and organizational level. The knowledge are transferred and shared along with the knowledge creation (Lindner & Wald, 2010). The no-barrier knowledge transfer and development within the temporary team could improve the competitiveness creativity and flexibility (Modig, 2007).

The integrated project management is concerned because of the uncertainty of temporary organization; the issues like planning and tighter control risk management are focused (Shenhar, 2001). Based on the concept of linear time, the project plan could be the indicator for the time-based team; participants could know what should do (Lundin & Steinthorsson, 2003). The proper plan could structure the activities of the task and provide the basic scope and information for the team members and partners (Lundin & Soderholm, 1995; Turnera & Mullerb, 2003). The actions could be controlled easily by the managers with the supportable plan. The uncertainty could also be reduced and the project management could be more successful with the forecasting and plan (Lundin & Soderholm, 1995). Moreover, the creativity and
flexibility are required for the organizational structure because of the unitary specific task (Modig, 2007).

Table 2 summarizes the factors which could affect on the performance of temporary teams.

**Table 6 Factors affecting on the performance of temporary teams**

<table>
<thead>
<tr>
<th>Resource utilization, allocation</th>
<th>Turnera &amp; Mullerb, 2003; Waard &amp; Kramer, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relations, internal, external</td>
<td>Yoo &amp; Alavi, 2004; Waard &amp; Kramer, 2008</td>
</tr>
<tr>
<td>Team actions, behavior</td>
<td>Lundin &amp; Soderholm, 1995; Pachendorff, 1995</td>
</tr>
<tr>
<td>Individuals skills, capability</td>
<td>Modig, 2007; Engwall &amp; Svensson, 2004; Pachendorff, 1995</td>
</tr>
<tr>
<td>Support from parent organization</td>
<td>Modig, 2007; Turnera &amp; Mullerb, 2003; Lindner &amp; Wald, 2010</td>
</tr>
<tr>
<td>Team environment</td>
<td>Modig, 2007; Lundin &amp; Steinthorsson, 2003</td>
</tr>
<tr>
<td>Leadership</td>
<td>Yoo &amp; Alavi, 2004</td>
</tr>
<tr>
<td>Communication, behavior, KM</td>
<td>Yoo &amp; Alavi, 2004; Modig, 2007; Lindner &amp; Wald, 2010</td>
</tr>
<tr>
<td>Work management, plan, schedule, control</td>
<td>Lundin &amp; Soderholm, 1995; Turnera &amp; Mullerb, 2003; Shenhar, 2001; Lundin &amp; Steinthorsson, 2003</td>
</tr>
<tr>
<td>Motivation</td>
<td>Engwall &amp; Svensson, 2004; Turnera &amp; Mullerb, 2003</td>
</tr>
</tbody>
</table>
4. Findings

*In this session, the details of the project will be given, and also the survey about other temporary team from 43 participants who has similar experiences.*

4.1. Qualitative case study

4.1.1. Project process

Idea creation

The origination of the technical innovation project is visual management of person who want to join the international conference. The purpose of the conference is security. In order to ensure the security of the conference, the host of the conference wants to carry on identity recognition and validation for each participant. Hence, the RFID application is proposed for the conference as a part of Mobilized RFID Identification System project.

The general instruction of the RFID person identification system is showed in Figure 7. Few days before the conference date, all the people should hand in their personal information to conference committee. Each one of them will get a RFID card which has their own information in the tag. On the conference dates, people should take their own RFID card to go through the gate. The reader will be at the gate to get the information from the tag, and the RFID server will show the database for each tag. An administrator will check the information at the server to keep the people has the right tag. If the information does not match the people, that persons will be taken the security check.
RFID as an important technique for the internet of things is a non-contact technology, which is able to store huge amounts of information, identify quickly and label is not easy to damage. The RFID technology is often used in the aspect of logistics and supply management and it preliminarily accomplished the innovation idea of Mobilized RFID Identification System. This technical innovation deal with the question of distance and it also can reduce the time of the person identification. So the participants do not need to sign-in by themselves.

**Preparation**

From conception to implement innovation, the project preparation stage includes four aspects of content: The first is the fund of the project. Because of the RFID technology is mature, the budget of the innovation technology within the 100,000 Chinese Yuan and it mainly focus on the facility imported and technology improvement. The second aspect is the technology. This technical innovation mainly pays attention to the RFID technology improvement. So the host of the conference
based on the mature RFID technology chooses the enterprise which is familiar with the using of RFID to achieve the technical innovation. The third aspect is personnel selection. Due to the innovation involve the programming and technology design, the person who knows the computer and electronic technique is preferred to consider. The fourth aspect is practical application. If we achieve this RFID technical innovation, the application is extensive. For example, before the conference starts, the staff often surveys the background of the participant and the information of these participants will be input the data base of the RFID. In this way, the staff can carry on the person identification and know the participant information from religion, culture and behaviour as the same time. Through this information, the host of the conference can provide the much suitable service for every participant who comes from all over the world.

Implementation

In order to reduce the risk and ensure the project can implement within the schedule. The project approval is on April in 2010. On August in 2010, the host of conference got the found to implement the plan of technical innovation project. It is enough to sufficiently prepare for the whole project.

To implement this technical innovation project, the host of the conference connected many enterprises to implement the idea. The enterprises were located in Beijing, Shanghai, Shenzhen, and Guiyang. Consider about the cost of communication and the advantage of every enterprise, the host of conference ultimately chosen Gui Yang enterprise as a partner to complete the whole project.

The whole project start to implement after the contract was signed. The host of the conference and Gui Yang enterprise begin with a series cooperation which is about
the order of technology and equipment, the goods arrival and organize an team to learn how to use the facility. The cooperation of each other follows in Table 3:

**Table 7 Project schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>The negotiation between the Gui Yang enterprise and host of conference</td>
</tr>
<tr>
<td>April 15</td>
<td>Confirm the cooperation of each other</td>
</tr>
<tr>
<td>April 30</td>
<td>The contract was signed.</td>
</tr>
<tr>
<td>May 10</td>
<td>The technology and equipment were provided</td>
</tr>
<tr>
<td>May 11</td>
<td>Organizing a team to learn how to use the technology and equipment and prepare for the conference.</td>
</tr>
</tbody>
</table>

4.1.2. Strategic management

*Team work*

For the sake of implementing the technical innovation project, the host of conference organized a team to learn how to use the technology and facility. The authors joined the project to help the team prepare the conference. The leader of the team is Ming Zhao, he is mainly responsible for the relevant project work decision. The connect person of team who named Zhouhui Deng is responsible for the details of the work which is about the conference. This temporary team, which is faced to the conference preparation and the technology innovation, consists of technician, manager, experts and so on. So the team members come from different knowledge areas. Because of this reason, the task allocation is using the form of discussion. Every team member
can give the opinion and comments on the questions which are about the task allocation and the detail of the conference preparation. At last, the leader according to the result of the discussion to allocate the assignment and confirm the implementation of the conference details. In order to strengthen the communication among members, the leader often organizes some entertainment activities.

*Partnership, supplier selection and negotiation*

The host of conference is Gui Zhou University, it provide the idea of the technical innovation and the preparation of the conference. The investor is Gui Yang Science. And Technology Bureau, it support the found to implement the project. The supplier of the RFID technology is Gui Yang enterprise, it offer the support of technology and design. The Shan Dong enterprise is the cooperative partner of Gui Yang enterprise, it focus on the facility manufacturing of the RFID technology and the Gui Yang enterprise outsource the part of device manufacturing which is about the technical innovation for this enterprise.

The host of the conference only have an idea, but not professionals of RFID, which is the reason to look for partners who can support the technological applications. In the implement phase of the project, there are two main suppliers to choose. The first is Beijing enterprise which has a better technical support. The RFID technology of Beijing enterprise is used in the Beijing Olympic Games in 2008. From the direct of the technology and equipment, Beijing enterprise has a powerful guarantee. But the cost of the technology and equipment is too high and Beijing enterprise just provides the technology and equipment in a rental form. If the host of conference chooses the Beijing enterprise, it does not need to pay attention to this technical innovation project. The Beijing enterprise will send to an experts group and give a series of service for
the host of conference to ensure this technical innovation project achieving. After the conference is over, the technology and equipment will be retrieved by Beijing enterprise. In the aspect of Gui Yang enterprise, it can support the design of this technical innovation project and the equipment and technology of the RFID will be provided as an outsourcing style. But the equipment and technology will be sold for the host of conference. If the host of conference chooses Gui Yang enterprise, they need to train a team to learn the usage of these technology and equipment. There are three major reasons to choose the Gui Yang enterprise. The first, the cost of the transform, technology and equipment are lower than the Beijing enterprise. The second, Gui Yang is an local enterprise and it is convenient to discuss and communicate the details of the usage of the technology. The third, the host of conference can get the technology and equipment from Gui Yang enterprise. When host control the usage of the technology, they can provide the service for others and create the value of this technology. In this way, they not only avoid the repeated investment and train a team, but also implement the benefit maximization, although they needs to spend the time to train a team to learn the technology.

After deciding the supplier of the project, the host of conference starts to negotiate with the Gui Yang enterprise. Through the communication with the Gui Yang enterprise, the host of the conference give the detailed requirement of the project. It includes the idea of the technical innovation, the use environment of the facility, the expert effect of the project and the time table for the whole project.

Because of Gui Yang enterprise is familiar with the RFID technology, they can offer the design of technical innovation and the soft support system to satisfy the demand of the conference. However, in order to reduce the time of technical innovation, the cost of the whole project and risk, they want to provide the facility as an outsourcing style
from the Shan Dong enterprise. Shan Dong enterprise have mature RFID technology and equipment, it can reduce the time of technical innovation. Combine with the soft support system which is provided by Gui yang enterprise and the hard system of Shan Dong enterprise, it can farthest satisfy the demand of the host of conference. Through a series of discussion, this scheme was eventually confirmed. The Gui Yang enterprise provide the technology and facility to the whole project needed cost of 136000 RMB. This price is more than the budget of the host of the conference. Through the survey of cost of the technology and facility, the host of conference decided to reduce one passage of checking to cut down the cost of the project. At the end, the whole cost of this project is decided within 80000 RMB.

After negotiation in many ways, the negotiators will sign a contract with each other. There is a different situation between the east and west. The contract is signed in the negotiation in the west. But contracts are often discussed and decided at dinner in the east. At dinner, negotiators can add the belief with each other and it is easier to establish a long-term cooperative relation. In this way, the host of conference and Gui Yang enterprise confirm the relationship of cooperation to each other.

4.2. Quantitative survey

Within the case study, authors learnt a lot of practical knowledge and some strategic skills. The survey was made on 43 persons who had experiences about working on innovative projects in temporary teams. These participants all come from China and are university teachers and students who have lead or joined many projects and others that have been working for many years in different areas and are experienced of project work. The questionnaire had 10 questions including many factors. The following Table 4 are the results that we got from the 43 persons.
Table 8 Survey result

1. What is your position in the innovative project team?

<table>
<thead>
<tr>
<th>Position</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a.Leader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.b.Member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.c.Partner Company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.d.Supplier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.e.Other, please specify</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. With your previous experiences, please rank the characters of temporary team which affect the performance negatively. (Rank from 1 to 6, 1 indicating affect on the performance most lightly, 6 indicating most badly)

<table>
<thead>
<tr>
<th>Character</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.a.Short life cycle</td>
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<tr>
<td>2.b.Specific mission</td>
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<tr>
<td>2.c.Weaker relationship/no culture</td>
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<tr>
<td>2.d.Varian experiences</td>
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<tr>
<td>2.e.Creative and flexible</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2.f.Not predictable/self-controlled</td>
<td></td>
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<td></td>
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</tbody>
</table>

3. How would you describe the temporary team work in your experiences? (Score each ones with 1 to 5, with 1 indicating disagree, 5 indicating most strongly agree)

<table>
<thead>
<tr>
<th>Degree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Working atmosphere in the team is good</td>
<td>0.00%</td>
<td>6.98%</td>
<td>34.88%</td>
<td>37.21%</td>
<td>20.93%</td>
<td>43</td>
</tr>
<tr>
<td>3.a</td>
<td>People feel the ownership in the team</td>
<td>2.33%</td>
<td>23.26%</td>
<td>30.23%</td>
<td>27.91%</td>
<td>16.28%</td>
<td>43</td>
</tr>
<tr>
<td>3.b</td>
<td>People work hard on their own cases</td>
<td>0.00%</td>
<td>13.95%</td>
<td>27.91%</td>
<td>41.86%</td>
<td>16.28%</td>
<td>43</td>
</tr>
<tr>
<td>3.c</td>
<td>People discuss sufficiently with each step</td>
<td>0.00%</td>
<td>4.88%</td>
<td>29.27%</td>
<td>34.15%</td>
<td>31.71%</td>
<td>41</td>
</tr>
<tr>
<td>3.d</td>
<td>People follow the schedules effectively</td>
<td>4.65%</td>
<td>4.65%</td>
<td>25.58%</td>
<td>44.19%</td>
<td>20.93%</td>
<td>43</td>
</tr>
<tr>
<td>3.e</td>
<td>People have the opportunities to show their ideas</td>
<td>0.00%</td>
<td>4.65%</td>
<td>30.23%</td>
<td>34.88%</td>
<td>30.23%</td>
<td>43</td>
</tr>
<tr>
<td>3.f</td>
<td>People can communicate openly</td>
<td>0.00%</td>
<td>2.33%</td>
<td>18.60%</td>
<td>41.86%</td>
<td>37.21%</td>
<td>43</td>
</tr>
<tr>
<td>3.g</td>
<td>People share own knowledge</td>
<td>0.00%</td>
<td>19.05%</td>
<td>14.29%</td>
<td>40.48%</td>
<td>26.19%</td>
<td>42</td>
</tr>
<tr>
<td>3.h</td>
<td>People have good relations with each other</td>
<td>0.00%</td>
<td>2.33%</td>
<td>16.28%</td>
<td>58.14%</td>
<td>23.26%</td>
<td>43</td>
</tr>
<tr>
<td>Question</td>
<td>People help with others’ workload</td>
<td>People have sufficient resources</td>
<td>People get work allocation as expected</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>9.30% 18.60% 44.19% 16.28% 11.63%</td>
<td>0.00% 4.65% 32.56% 51.16% 11.63%</td>
<td>0.00% 4.65% 32.56% 32.56% 30.23%</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

4. How often do the following problems happen? (Score each ones with 1 to 5, with 1 indicating very rarely, 5 indicating very frequently)

<table>
<thead>
<tr>
<th>Question</th>
<th>Degree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.a Lack of resource</td>
<td>4.65% 9.30% 60.47% 18.60% 6.98%</td>
<td>43</td>
<td>3.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.b Project delays</td>
<td>4.65% 20.93% 23.26% 32.56% 18.60%</td>
<td>43</td>
<td>3.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.c Bad quality</td>
<td>16.28% 30.23% 30.23% 23.26% 0.00%</td>
<td>43</td>
<td>2.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.d Budget overruns</td>
<td>6.98% 20.93% 37.21% 23.26% 11.63%</td>
<td>43</td>
<td>3.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.e Conflicts in team</td>
<td>9.30% 30.23% 44.19% 11.63% 4.65%</td>
<td>43</td>
<td>2.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.f Emergency</td>
<td>11.63% 23.26% 23.26% 27.91% 13.95%</td>
<td>43</td>
<td>3.09</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
5. To which degree do you agree with the following potential factors will affect the project’s success in a positive way? (Score each ones with 1 to 5, with 1 indicating totally disagree, 5 indicating fully agree)

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Count</th>
<th>Average Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.a Resource utilization, allocation</td>
<td>2.33%</td>
<td>6.98%</td>
<td>16.28%</td>
<td>48.84%</td>
<td>25.58%</td>
<td>43</td>
<td>3.88</td>
</tr>
<tr>
<td>5.b Relations, internal, external</td>
<td>0.00%</td>
<td>0.00%</td>
<td>18.60%</td>
<td>46.51%</td>
<td>34.88%</td>
<td>43</td>
<td>4.16</td>
</tr>
<tr>
<td>5.c Team actions</td>
<td>0.00%</td>
<td>16.28%</td>
<td>34.88%</td>
<td>16.28%</td>
<td>35.56%</td>
<td>43</td>
<td>3.65</td>
</tr>
<tr>
<td>5.d Individuals’ skills, capability</td>
<td>0.00%</td>
<td>11.63%</td>
<td>37.21%</td>
<td>27.91%</td>
<td>23.26%</td>
<td>43</td>
<td>3.63</td>
</tr>
<tr>
<td>5.e Support from parent organization</td>
<td>0.00%</td>
<td>6.98%</td>
<td>34.88%</td>
<td>39.53%</td>
<td>18.60%</td>
<td>43</td>
<td>3.70</td>
</tr>
<tr>
<td>5.f Team environment</td>
<td>0.00%</td>
<td>11.63%</td>
<td>23.26%</td>
<td>34.88%</td>
<td>30.23%</td>
<td>43</td>
<td>3.84</td>
</tr>
<tr>
<td>5.g Leadership</td>
<td>0.00%</td>
<td>0.00%</td>
<td>9.30%</td>
<td>51.16%</td>
<td>39.53%</td>
<td>43</td>
<td>4.30</td>
</tr>
<tr>
<td>5.h Communication</td>
<td>0.00%</td>
<td>0.00%</td>
<td>11.63%</td>
<td>25.58%</td>
<td>62.79%</td>
<td>43</td>
<td>4.51</td>
</tr>
<tr>
<td>5.i Behaviours of team member</td>
<td>4.65%</td>
<td>16.28%</td>
<td>23.26%</td>
<td>46.51%</td>
<td>9.30%</td>
<td>43</td>
<td>3.40</td>
</tr>
<tr>
<td>5.j Process management,</td>
<td>0.00%</td>
<td>0.00%</td>
<td>11.63%</td>
<td>25.58%</td>
<td>62.79%</td>
<td>43</td>
<td>4.51</td>
</tr>
</tbody>
</table>
### 5.k Motivation, possible future benefit

<table>
<thead>
<tr>
<th></th>
<th>0.00%</th>
<th>11.63%</th>
<th>16.28%</th>
<th><strong>39.53%</strong></th>
<th>32.56%</th>
<th>43</th>
<th>3.93</th>
</tr>
</thead>
</table>

### 6. How do you think the importance of the project management in a temporary team? (Score each ones with 1 to 5, with 1 indicating least important, 5 indicating most important)

<table>
<thead>
<tr>
<th>Degree</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.a Integration management</td>
<td>2.33%</td>
<td>4.65%</td>
<td>13.95%</td>
<td>32.56%</td>
<td><strong>46.51%</strong></td>
<td>43</td>
<td>4.16</td>
</tr>
<tr>
<td></td>
<td>6.b Scope management</td>
<td>0.00%</td>
<td>2.33%</td>
<td>34.88%</td>
<td><strong>46.51%</strong></td>
<td>16.28%</td>
<td>43</td>
<td>3.77</td>
</tr>
<tr>
<td></td>
<td>6.c Time management</td>
<td>0.00%</td>
<td>4.65%</td>
<td>18.60%</td>
<td>34.88%</td>
<td><strong>41.86%</strong></td>
<td>43</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>6.d Cost management</td>
<td>0.00%</td>
<td>6.98%</td>
<td><strong>34.88%</strong></td>
<td>30.23%</td>
<td>27.91%</td>
<td>43</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td>6.e Quality management</td>
<td>0.00%</td>
<td>6.98%</td>
<td>11.63%</td>
<td>16.28%</td>
<td><strong>65.12%</strong></td>
<td>43</td>
<td><strong>4.40</strong></td>
</tr>
<tr>
<td></td>
<td>6.f HR management</td>
<td>0.00%</td>
<td>11.63%</td>
<td><strong>32.56%</strong></td>
<td>30.23%</td>
<td>25.58%</td>
<td>43</td>
<td>3.70</td>
</tr>
<tr>
<td></td>
<td>6.g Communication management</td>
<td>2.33%</td>
<td>0.00%</td>
<td>16.28%</td>
<td>39.53%</td>
<td><strong>41.86%</strong></td>
<td>43</td>
<td>4.19</td>
</tr>
</tbody>
</table>
6.h Risk management

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Count</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.98%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.93%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>51.16%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.i Procurement management

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Count</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.28%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>37.21%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. In the preparatory stage, which of the following issues do you think are the most important? (multiple choices)

7.a. Information collection and analysis

7.b. Consider the demand and...

7.c. Organize the team members

7.d. Define the objectives

7.e. Other, please specify

7.e. Other, please specify:
X1: good organizer; X2: organization management is quite important

8. Which approach do you recommend temporary team to deal with the specific technical issues? (single choice)

8.a. Outsourcing

8.b. Learn and try by selves

8.c. Find Partner Company to...

8.d. Other, please specify

8.d. Other, please specify: X: according to the situation, consider about the difficult degree, choose the choice with the best efficiency.
9. In which degree would you recommend the following issues for the other temporary team with their innovative project? (Score each one with 1 to 5, with 1 indicating not recommend, 5 indicating strongly recommend)

<table>
<thead>
<tr>
<th>Question</th>
<th>Degree</th>
<th>Count</th>
<th>Average point</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.a Strategic management (goal and implementation)</td>
<td>2.33%</td>
<td>43</td>
<td>4.16</td>
</tr>
<tr>
<td>9.b Knowledge management (strategically transformation between tacit knowledge and explicit knowledge management)</td>
<td>6.98%</td>
<td>43</td>
<td>3.60</td>
</tr>
<tr>
<td>9.c Process control (while the project happening)</td>
<td>0.00%</td>
<td>43</td>
<td>4.23</td>
</tr>
<tr>
<td>9.d Communication activities (e.g. regular meetings, free time)</td>
<td>2.33%</td>
<td>43</td>
<td>4.23</td>
</tr>
</tbody>
</table>
10. While you asking all the questions above are there any other answers you would like to add? Please give your suggestions about innovative project management for the other temporary team.

X1: To innovative temporary team, it is important to establish the emergency plan and scope management. Petty things will affect to the result need to be paid more attention.

X2: leadership becomes a shared activity.

X3: it is time control and cooperation that are the most important things in a team work besides self-knowledge.

X4: Team environment

X5: the right project is important, and also the organizer and leader.

X6: 1. the reaction on emergency should be active; 2. the team should be motivate; 3. the leader should organize the whole team in the whole scope.

X7: leadership, organizational management acts the really important in the temporary team about the innovative project.

X8: I think the communication is most important for a temporary team. Another question is leadership, a good leader can make the team have a good efficiency and give full play to a team's ability.

X9: the requirement and cooperation along with communication should be managed well with the partner company.
5. Analysis and discussion

This chapter will give the discussion based on the survey and case study and a new model for the temporary team will be built by the analysis results.

5.1. Research findings

In this thesis, the theoretical framework is the fundamental part, and the survey was mainly based on the theories; the case study is based on the practical experiences. Hence, we would analyze the findings by two parts; one is survey results combined with the theories, the other is case study results.

5.1.1. Survey results

- Some results from survey are as below:

  Three characters of the temporary team affect the performance mostly, which are 2.c. Weak relations and no culture; 2.f. Not predictable and hard self-control; 2.d. Varian experiences.

  In the team work, most of the people do not agree much with: 3.b. People feel ownership in the team; 3.j. People help each other and share workload; 3.k. The resources are always sufficient during the work.

  Project delays and emergency usually happened in the temporary team while working.

  Most of people agree that the 5.h. Communication, 5.j. Process management, 5.g. Leadership, 5.b. Internal and external relations are the factors which affect on the success of a temporary team.
About the project management, most of them think that the 6.e. Quality management
6.a. Integration management and 6.g. Communication management is quite important
for the temporary team.

In the preparation phase, people think the 7.a. Information collection and analysis is
most important.

About the specific technical issues, 8.c. Find a partner company to work together is
suggested. And also many people add advices to choose depend on the situation.

are the three issues that people suggested mostly to the temporary team.

- Some results from theoretical framework are as following:

The Innovation process model from Bessant and Tidd (2007) has formed the general
model for innovation processes. There are three phases which from proactive to
information generation to selection, and also the strategic leadership and innovative
organizational culture should support the whole process. This model could be used in
the normal organization which has their project team and organizational culture, but
for the temporary team it is no longer suitable for the situation. With the theoretical
research about the temporary team, there are some characteristics about the temporary
team, which are: the team has short life cycle and the time limitation of the project
(Modig, 2007; Lundin & Soderholm, 1995; Engwall & Svensson, 2004; Lundin &
Steinthorsson, 2003); they have specific mission and task-oriented goals to achieve
(Lundin & Soderholm, 1995; Engwall & Svensson, 2004); the temporary team are
organized because of the specific task, so the team members never worked together
and they do not have organizational culture and good work relationship (Modig, 2007;
Lundin & Soderholm, 1995); moreover the members have different background, and
their experiences are vary and they are also flexible and creative for the task (Modig, 2007; Lundin & Soderholm, 1995; Turnera & Mullerb, 2003); the temporary team is hard to predict the work process and result, and also difficult to keep the whole group in controlled (Lundin & Steinthorsson, 2003). With all of these different characteristics, we try to create a new model which is suitable for the temporary team with their innovative project.

We have summarized the possible factors which will affect on the work performance of the temporary team, they are: allocation and utilization of the resources (Turnera & Mullerb, 2003; Waard & Kramer, 2008); the internal and external relations of the team (Yoo & Alavi, 2004; Waard & Kramer, 2008); the behaviour and actions of the team members (Lundin & Soderholm, 1995; Pachendorff, 1995); skills and capability of the individuals (Modig, 2007; Engwall & Svensson, 2004; Pachendorff, 1995); the support from parent organization (Modig, 2007; Turnera & Mullerb, 2003; Lindner & Wald, 2010); the team environment and the leadership (Modig, 2007; Lundin & Steinthorsson, 2003); and the communication and knowledge management (Lundin & Soderholm, 1995; Turnera & Mullerb, 2003; Shenhar, 2001; Lundin & Steinthorsson); the further opportunities and the motivation of the team member (Engwall & Svensson, 2004; Turnera & Mullerb, 2003).

From the results showed above, the temporary team has weaker relations and culture than normal firms. With short work relations, the temporary team do not have supportive organizational culture or strategy to support the innovation project; these elements which the Innovation process model by Bessant and Tidd (2007) requires are not available in temporary team. With those characters, the temporary team requires: a) the strategic leadership to organize the temporary team and build the supportive work atmosphere for team members; b) the knowledge management should be provided for
the temporary team with sufficient communication and experiences sharing; c) the more flexible work process and method should be available for the temporary team to overcome the uncertainty.

5.1.2. Case result

According to the project process, we can see there are three main stages: initiation, implementation and close down.

According the information of conference, the temporary team is organized in the initiation stage. Because of the team is temporary and it organized by the demand of the conference, the team member comes from different areas and they do not have any cooperation experience with each other. Compared with normal firms, this temporary team lack of context, culture and relations. So the information collection which is about the conference is important in the same way as in the model by Bessant and Tidd (2007). This information will be classified in the conference preparation phase. Through the information which is classified the temporary team can plan the implementation stage.

In the stage of implementation, there are two situations in the innovation project process. If the technical issue can be solved by the temporary team, the innovation project includes three main areas which include operation as schedule, regular evaluation and correction. In the case, the schedule during March to May provide a clear conduct to the temporary team and make the whole team member have a common target of cooperation. Because there will be some mistakes in the actual situation, the regular evaluation and correction is important. In the case, the temporary team use the style of discussion to carry out the regular evaluation and correction, so that innovation project operates smoothly. Due to the temporary team is lack of
knowledge in the actual technology and organized in a short time, the innovation project process in temporary team is more complicated than normal firms. There might be some technical issues that they cannot do it in this team. So the specific technical issues will be implemented by cooperation or outsourcing. Such as the temporary team of the conference outsource the RFID technology for Gui Yang enterprise. The detail of the RFID technology will be solved by the Gui Yang enterprise and the temporary team can pay attention to the other important areas of the conference. In this situation, the vender selection is become most important question. Through compared the merit and demerit of the two enterprises, the host of conference choose the suitable enterprise to achieve the RFID technology in the case.

Because this is temporary team, there will be a lot of communicative questions. In the close down stage it is important to conclude and feed back the problem of working regular. The feedback and conclusion is carried out in the discussion conference and the situation of every phase is put on record in the case. The experience of the temporary team work will be used in future technological innovation projects.

5.2. Synthesis of temporary team innovation process model

From the research results listed above, the differences between the temporary team and stationary organization are significant. With the purpose of this thesis, to find out how innovation projects in temporary teams can be successfully managed? We would form a new model based on the empirical study and theoretical research, and show other temporary teams our research results clearly. Hopefully, it could be supportive for the temporary teams with their project. In Figure 8 below we show the new model, that we named the TT (Temporary Team) Innovation Process Model, and directly after the figure we will explain its content, function and connection to theory and our findings.
As the Figure 8 shows, there are generally three basic phases: initiation, implementation and close down. These three phases follow the life cycle of a temporary team innovation project.

In the initiation phase, this phase is for the information collection and classification; there are proactive activities as generate of information and selection of information. The three activities within this first phase are for the project preparation, and the temporary team needs to understand the situation very well and analyze the right information and choose the right innovation project.

In the implementation phase, is based on the prepared information from the first phase and goes from plan to operation and so on. Because different situations exist in different cases, there can be two ways to execute the implementation. After planning, the team could choose to implement it all by using the own team or outsource technology development from outside. The first option is to plan to operation as...
schedule to regular evaluation to correction. This process should be well controlled by
the temporary team, because the uncertainty and the unstable work performance, the
regular evaluation and immediate correction are needed. The other option is to
outsource from outside the team, this one is better for the team which does not have
the professional skills and facility to operate the specific issues. In this case, to
cooperate with another company can reduce the risks and improve the performance.
So the temporary team should manage this outsourcing as the steps from plan to
vendor selection to requirement define and supervise to check the results. There is
also the possibility that the both ways to implement can be used concurrently, when
part of the work is done by the temporary team and part of the work is done by an
external part, which was the case in our case study.

Close down is the ending of the project; the temporary team should give feedback and
a summary of the whole project and the work of the temporary team. There can be
valuable conclusion about what could be worthy to remember and to learn and what
could be correct and notice next time similar projects are done.

And through the three phases of this whole process, the strategic leadership and
knowledge management are needed for the team. The leadership is significant for the
temporary team which provide the sign for other members to work. To enhance the
teamwork and relations, the sufficient communication and knowledge management
are required in the team; such as meetings activities and discussions in the team could
provide the chances for team members with their communication and better
understanding with each other; the fluency of their process could be improved.
6. Conclusion

This chapter summarize the study results from the research and give answers to the research purpose on how innovation projects in temporary teams can be successfully managed.

6.1. The weaknesses of the previous model

The Innovation process model from Bessant and Tidd (2007) could be used in a normal organization which has their project team and organizational culture. Compared with normal firms, a temporary team has a short life cycle and time limitation of the project. Temporary team members have different background, their experiences are varied and they are also flexible and creative for the task. The previous model does not pay attention to this situation and is less suitable to use to manage innovation projects within temporary teams. Based on the previous model, we have created a new model which is suitable for temporary teams doing technological innovation projects which shows how innovation projects within temporary teams can be successfully managed.

6.2. Empirical findings

Through the result of the survey and case study, we have discussed the requirement of the new model and proposed questions which we should need to notice. Through the research and survey, the results are summarized as follows:

Three characters of the temporary team affect the performance mostly, which are weak relations and no culture, unpredictable and hard self-control, and various experiences.

In the team work, most of the people do not much agree with the three situations: The first is that people feel ownership in the team. The second is that people help each
other and share workload. The third is that the resources are always sufficient during the work.

Project delays and emergency usually happen in temporary teams while working.

Most of people agree that the communication, process management, leadership, internal and external relations are the factors which affect on the success of a temporary team.

About the project management, most of them think that the Quality management, Integration management and Communication management are quite important for the temporary team.

In the preparation phase, people think the information collection and analysis is most important.

About the specific technical issues, finding a partner company to work together with is suggested. The choice of Partner Company depends on the situation.

Communication activities, process control and strategies management are the three issues that people suggested mostly to the temporary team.

In order to deal with these important issues, we conclude the whole innovation process for three basic phases: initiation, implementation and close down. Through the case study and survey, we summarize concrete step in every stage. In the initiation stage, three steps can help the temporary team analyze the right information and understand the situation of the innovation project. From the case study, we can see the two situations in the implementation stage. The team could choose to implement all by own team or outsource from outside. They can also do both concurrently. According to the survey and theoretical foundation, we summarize the main step of the two methods. In the first method, the temporary team need to operation as schedule to regular evaluation to correction. The other method is included four
aspects: vendor selection, understands the requirement of the innovation project, supervise and check.

Close down is the last stage of the project. In order to reduce the mistakes and improve the efficiency of the temporary team, it is important to conclude and feedback the problem of working regular. We need to summarize about what could be worthy to remember and to learn, what could be correct and notice next time a similar technological innovation project is done.

6.3. TT (Temporary Team) Innovation Process Model

From the research results and empirical findings listed above, the differences between the temporary team and normal organization are obvious and serious. Hence, depends on the case study and survey, we design a new model which is show in figure 9 (Same figure as Figure 8) for temporary teams to support their technological innovation projects.

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**Figure 9 TT Innovation Process Model**
The uniqueness of the TT Innovation Process Model is the focus on the temporary team. Because of the flexible, short life cycle and lack of knowledge in the actual technology of the temporary team, the innovation project process in temporary team is more complicated than in normal firms. But the temporary team exist widely in various fields. The unique difference from temporary team to normal enterprise team is the lack of context, culture and relations that is present in a new organization as the project group is. It also gives that leadership becomes more important because much is uncertain. A lot of communication is also needed to overcome this uncertainty. So a model which is involved the temporary team management is necessary for the area of management. We have summarized and relevant theory and our empirical findings to conclude our study and these conclusions are the foundation of the proposed TT Innovation Process Model. The temporary team of conference use this process described by this model to achieve the whole preparation of the international conference successfully and the conference was held on June 12, 2011 resoundingly.

6.4. Further research

This study is merely focus on the technical innovation project area. The temporary team exist in the various projects. In the further research, we can investigate different style of projects and compare the difference of these styles. We can further develop the model to deal with innovation project management within temporary teams. A limitation of the study is the survey and research which is aimed at Chinese situation and the investigation is in the context of China. Further research can add contextual factors of other countries to enhance the universal applicability of the model.

The Mobilized RFID Identification System is still processing, the technical innovation project is going on in the studied temporary team. Hence, the TT Innovation Process
Model which we proposed may provide a suitable method for temporary project teams to successfully manage technical innovation projects in temporary teams in the future.
Reference


Appendix: Questionnaire

Department of Industrial Engineering and Management

Master Programme in Management of Logistics and Innovation

Supervisor: Ming Zhao

Ying Liu & Chuanxi Qin

Survey Guideline:

Innovations push the improvement of the whole society. More than half of the innovation projects were failed because of varies issues. The normal organizations with organizational culture and strategic project management have higher possibilities to see the success. Yet in numerous cases, people are gathered to organize an innovation project just because of one creative idea. These temporary teams may encounter some unexpected issues and factors while the project processing.
This survey is to collect information from participants who have different experiences. We would invite you to give your own opinions by using personal knowledge, and all your answers could support our research to find out the better way to manage the innovative project in temporary team.

For each question, please indicate the response by ticking the corresponding box, or by writing in the answer.

1. What is your position in the innovative project team?

☐ Leader
☐ Member
☐ Partner Company
☐ Supplier
☐ Other, please specify ____________

2. With your previous experiences, please rank the characters of temporary team which affect the performance negatively. (Rank from 1 to 6, 1 indicating affect on the performance most lightly, 6 indicating most badly)

Short life cycle ☐
Specific mission ☐
Weaker relationship/no culture ☐
Varian experiences ☐
Creative and flexible ☐
1. How would you describe the temporary team work in your experiences? (Score each ones with 1 to 5, with 1 indicating disagree, 5 indicating most strongly agree)

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<th>3</th>
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<tbody>
<tr>
<td>Working atmosphere in the team is good</td>
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<td>People feel the ownership in the team</td>
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<td>People work hard on their own cases</td>
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<td>People discuss sufficiently with each step</td>
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<td>People follow the schedules effectively</td>
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<td>People have the opportunities to show their ideas</td>
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<td>People can communicate openly</td>
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</table>
People share own knowledge

People have good relations with each other

People help with others’ workload

People have sufficient resources

People get work allocation as expected

2. How often do the following problems happen? (Score each ones with 1 to 5, with 1 indicating very rarely, 5 indicating very frequently)

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<tr>
<td>Lack of resource</td>
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<td>Project delays</td>
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<tr>
<td>Bad quality</td>
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<td>Budget overruns</td>
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5. To which degree do you agree with the following potential factors which affect the project’s success in a positive way? (Score each ones with 1 to 5, with 1 indicating totally disagree, 5 indicating fully agree)

<table>
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<tr>
<th>Resource utilization, allocation</th>
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<tbody>
<tr>
<td>Relations, internal, external</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
<td>c</td>
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<tr>
<td>Team actions</td>
<td>c</td>
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<td>c</td>
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<td>c</td>
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<tr>
<td>Individuals’ skills, capability</td>
<td>c</td>
<td>c</td>
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<tr>
<td>Support from parent organization</td>
<td>c</td>
<td>c</td>
<td>c</td>
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<tr>
<td>Team environment</td>
<td>c</td>
<td>c</td>
<td>c</td>
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</tbody>
</table>
Leadership

Communication

Behaviours of team member

Process management, plan, schedule, control

Motivation, possible future benefit

6. How do you think the importance of the project management in a temporary team? (Score each one with 1 to 5, with 1 indicating least important, 5 indicating most important)

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<tr>
<td>Integration management</td>
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<td>Scope management</td>
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<td>Time management</td>
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<td>Cost management</td>
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Quality management

HR management

Communication management

Risk management

Procurement management

7. In the preparatory stage, which of the following issues do you think are the most important? (multiple choices)

- Information collection and analysis
- Consider the demand and requirement
- Organize the team members
- Define the objectives
- Other, please specify

8. Which approach do you recommend temporary team to deal with the specific technical issues? (single choice)

- Outsourcing
- Learn and try by selves
Find Partner Company to work together

Other, please specify ________

9. In which degree would you recommend the following issues for the other temporary team with their innovative project? (Score each ones with 1 to 5, with 1 indicating not recommend, 5 indicating strongly recommend)

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<tr>
<td>Strategic management</td>
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<td>(goal and implementation)</td>
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<tr>
<td>Knowledge management</td>
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<tr>
<td>(strategically transformation between tacit knowledge and explicit knowledge management)</td>
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<tr>
<td>Process control</td>
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<td>(while the project happening)</td>
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<tr>
<td>Communication activities</td>
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<td>(e.g. regular meetings, free time entertainment)</td>
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<td>Performance assessment</td>
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<td>(after the project finished)</td>
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10. While you asking all the questions above are there any other answers you would like to add? Please give your suggestions about innovative project management for the other temporary team.

Thank you very much for your co-operation!