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Clients' Capabilities in Managing Major Infrastructure Construction Projects in Sweden

Master of Science Thesis in Design and Construction Project Management

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CHALMERS UNIVERSITY OF TECHNOLOGY
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ABSTRACT

Economic, social and cultural development of a country depends on its infrastructure facilities, in addition infrastructures are considered as the backbone of a nation. But, it is almost inevitable that large infrastructure projects arrive late, overrun the budget and fail to perform to expectation. In this relation, clients' -especially public clients- capabilities get a big question mark. Moreover, public clients are considered to have poor management skills, risks handling, and over dependency on contract documents and adversarial relationship with other participants in the projects. Trafikverket and Vattenfall are the biggest public clients who construct major infrastructure projects in Sweden taken as example for this study. Interviews have been performed in order to contractual and relational aspect, in house competency, and design management aspect. In this study it has been found that due to lack of trust between the participating actors in the infrastructure construction project clients are suspicious to over opportunistic behaviour of other participants, and they are reluctant in sharing valuable information. Moreover, clients are not found inspiring innovation in projects. Design management, stakeholder management, contracting capability, and relationship with other parties are the areas were found that clients should take care in Sweden to improve their capabilities for managing major infrastructure construction project efficiently.

Keywords: Relational Capability, Contractual Capability, Project Success, Trust and Co-operation

Contents

Preface

This thesis is submitted in partial fulfilment of the requirements for Masters in Design and Construction Project Management. It has been carried out at the Department of Civil and Environmental Engineering at the division of Construction Management, Chalmers University of Technology, Sweden from March to November, 2011. Sven Gunnarson, Head of the Division of Construction Management was the supervisor of this thesis work. The thesis work was carried out to get a better view about the capabilities of public clients in managing major infrastructure construction projects. The thesis work has been made solely by the authors; however, previous researches related to this subject matter have been crucial to get a bigger picture. We have done our best to give credit through providing references to those research sources in the theoretical framework.

Finally, it should be noted that this thesis work could never be realized without the cooperation of staffs of Trafikverket and Vattenfall, and continuous supervision, support and constructive criticism of our supervisor. So that, we would like to give special thanks to our supervisor, Sven Gunnarson for his great inspiration, ideas, comments and for making easier to find interviewees. In addition, we would like to forward our gratitude in general, to those who made the process of the thesis work smooth and easier.

Göteborg, December 2011

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1 Introduction

1.1 Background

Major infrastructure projects are perceived as large scale systems which comprise a large number of subsystems and components, and complex relations among these components, characterized by being physically or dimensionally large (Yeo, 1995). The development of these major infrastructure projects is triggered by a continuous process of forecast of growth in demand and national economic development (Yeo, 1995). In addition, according to Yeo (1995) the reason behind any nation to give more emphasis in investing on infrastructure development is either to keep or speed up its economic development. Moreover, infrastructure projects pave the ways for a country to facilitate its development effectively (Mostert, 2007) so that it plays important role for countries' economic, social, cultural activities and the functioning of ecosystem. However, the value of infrastructure is basically comprehended by the added value to the activities it supports otherwise hardly have any value by itself (Mostert, 2007).

Major infrastructure projects have been notorious for their inability to keep to budget and schedule (Winch, 2010). So, efficient allocation of resources is a great concern in accomplishing infrastructure projects, because resource overrun is a common feature for this kind of projects (Cantarelli et al, 2010) which could even be threatening the validity of the project. Many authors like Morris (1990), Lee (2008), Fouracre (1990), Mansfield (1994) and Flyvberj et al (2003) have found in their studies that majority of the infrastructure construction projects overrun its estimated resources, in some cases up to 40-200 per cent of its original estimate. It is almost inevitable that large infrastructure projects arrive late, overrun the budget and fail to perform to expectation (Flyvberj et al., 2009).

Large scale infrastructure construction projects are associate with lot of uncertainties. This is due to the fact that unforeseen and unrecognizable changes in the project environment will cause the result to be unanticipated (Yeo, 1995). In addition, according to Rose and Manley (2010) the riskiness is more severe in the cases where projects are one-off, large and complex due to high level of technical uncertainties. Moreover, inability to predict accurately the outcome and performance level which is aggravated by initial lack of information and relevant knowledge, and a clear definition of the project objective, have a major stake on the problem of ambiguity and uncertainty of project environment(Yeo, 1995). In addition, any change in the socioeconomic and political environment can cause the original definition of the project to be unrealistic (Yeo, 1995).

Moreover, miscalculation of different resource requirement and added value of the constructed facilities to the economy and society might open the opportunity of strategic misrepresentation. This is due to the fact that the promoters of the projects are systematically biased towards the overestimation of the benefits of the project and underestimation of the cost of the projects. As a result many large infrastructure projects fail to achieve their objective in terms of benefits for economy and society, and some become burdensome to the clients when clients cannot dispose the project and in the same time the project cost gets much more higher to the proportion of the project's usefulness which termed as 'White Elephants' (Winch et al., 1998).

On the other hand, the development of a country significantly depends on construction industry where both public and private organizations play important roles. To ensure efficient distribution of resources and goods, accessibility and economic development

of the region, the mobility and benefit of citizen; management of the national infrastructure networks is one of the primary tasks of public organizations in construction (Hartmann et al., 2010).

1.2 Clients of Major Infrastructure Projects

Public organizations (clients) are the key actors or participants in managing major infrastructure projects which are characterized by a complex situation, where different conflicting demands among the interest groups collide each other both internally and externally to its own environment (Hartmann et al., 2008). Hence, public organizations play key role in defining the project objectives, scopes and required facilities (Simkoko, 1992) for the proposed infrastructure. However, the management of these projects through its life cycle is a bundle of complex processes. On top of that, lack of information and relevant knowledge, and lack of a clear definition of the project mission contribute to the problem of ambiguity (Yeo, 1995) that misguide to achieve the goals of the infrastructure projects.

In managing construction projects, clients are considered with poor management skills; whose tendency is to pass the risks to other parties rather than identifying, allocating appropriately and managing those (Winch, 2010). In addition, clients rely on contract documents to resolve problems with adversarial relationship (ibid). Hence, to handle such complex and conflicting demands of actors, clients such as public organizations need to build their capabilities to deliver projects successfully (Hartmann et al., 2008).

However, the increased involvement of private sector with well described product and services, trigger public organizations to develop and put in practice new procurement strategies, and contractual and relational governance as well (Hartmann et al., 2008). These shield minimize contractual hazards and opportunistic behaviour by visibly stipulating what is allowed and what is not within a relationship (Zheng et al 2008). According to Hartmann, (2010) the effectiveness of these procurement processes are relied on the contractual and organizational arrangement put in place to deliver the product or the service. So that it makes sense for public organizations to build contractual and relational capabilities (Hartmann, et al (2010). Because of the fact that, the clients who are contractually capable are able to speculate major hazards of opportunism and deal with them during the drafting, tendering and negotiation of contract documents (Hartmann et al., 2010). Moreover, specifically, increasing transactional complexity creates ambiguity and uncertainty that a contract cannot withstand by its own (Argyres and Mayer, 2007). However, to alleviate such problems and support the contractual capability, public agencies (clients) need to address other complementary ways which promote problem solving and information exchange, relational mechanism such as trust and cognitive alignment (Hartmann, 2010; Poppo and Zenger, 2002).

Many researchers such as, Hartmann, (2010); Simkoko (1992); Zheng et al., (2008) Argyres and Mayer,(2007) etc., have studied in major infrastructure project management field from clients point of view. Some focused and tried to address the risks management issue in one side and others on how to develop the capability of the public organization (clients) especially on contractual and relational aspects. They also focus the inter-relationship of the two capabilities and its effect to the project management. In this thesis work, the previous research works have been carefully reviewed and many of thoughts of the researchers that they resided on have been well iterated and formulated further showed in the theoretical framework.

1.3 Objective

To find out the clients' management practice in managing major infrastructure construction projects in Sweden.

1.4 Purpose

To investigate the clients' capabilities and figuring out the factors resided in the process that cause flaws in the clients' practices in managing major infrastructure construction projects in Sweden.

1.5 Limitation

To accomplish the purpose of this study, access to broader information sources in relation to public organizations' (clients') construction management practices are required, where clients' opinion as well as other participants like different consultants' and contractors' views are essential. Two client organizations, Trafikverket which is a public company and Vattenfall which is a state owned limited company were contacted to gather the information. Unavailability of consultant and contractor organizations to interview, and insufficiency of time were the limitations in this study to capture the whole picture of the clients' management practices. That is why the findings of this study cannot be generalized.

2 Theoretical Framework

In the beginning of this chapter, the factors which are complementary to a project for being successful will be discussed, and following that significance of trust and co-operation in the project environment will be acknowledged briefly. Afterward the duties of the client will be talked, and at the last part of this chapter the key issue of this study i.e. capabilities of the infrastructure construction client will be mention from contractual and relational perspective.

2.1 Project Success Factors

Although in traditional practice, time, cost and quality are considered as the salient factors of project success in the construction industry, whereas these factors are problematic to understand the project management tasks in two ways (Winch et al., 1998). Firstly, project objectives setting, and accomplishing the project accurately against objectives both are the task of project management, but the traditional factors do not give a clear view whether it is the process of setting objectives, or executing against objectives that previously put. Secondly, quality has four meanings in construction that makes it ambiguous such as, quality of conception (elegance of form, spatial articulation, contribution to the culture etc.), quality of specification (technical standard and level of finish required), quality of realization (clients' review and total quality management) and quality of conformance (ways of fulfilling conception, specification and realizations' tasks) (ibid). However, these factors focus only internal groups' (Client, contractor and consultant) interests of a project excluding other stakeholders. Moreover, modern business world tremendously competitive and customer oriented, so these parameters becomes obsolete to measure the project success (Pinto and Slevin, 1988a). For instance, the Eurotunnel project which cost 15 billion pound whereas its initial budget was 7.5 billion pound and it took about 18 month more than its scheduled time (ibid) so, in traditional measuring aspect this project could be characterized as failure. Nevertheless, appraising a project from strategic perspective e.g. long term thinking which means its' contribution to the society and future generation, play significant role to define project success or failure (ibid); and that makes the Eurotunnel project as a successful one. In the end-user or client oriented business strategy satisfying the end-user or clients which means satisfying the intended end user is now governing factor for a project for being succeed.

However, after studying over 400 projects Pinto and Slevin (1988b) concluded that the factors behind a successful project are (cited in Sheikh and Pryke, 2010):

- Coordination and relationship between the project participants;
- Adequacy of project structure and control system;
- Project uniqueness, importance and public exposure;
- Success criteria salience and consensus;
- Competitive budgetary pressure;
- Initial over-optimism, conceptual difficulty;
- Internal capabilities build up

Furthermore Pinto and Slevin (1988a) developed a ten-factor model of critical success factors for project implementation as below:

Factors	*Definition*
Project Mission	Understanding the purpose for the implementation which means clarification of project goals to all over the participating organizations.
Top management support	Awareness and willingness of the top management for supporting the project team by required resources in any situation of the project
Project Schedule and Plans	Creating a detailed outline of the required stages in the implementation process, including work breakdown, resource scheduling, and activity sequencing. Moreover, the degree to which time schedules, milestones, staffing, and equipment requirements, performance measuring system are also specified
Client Consultation	Clients involvement through the implementation processes
Personnel	Appointing appropriate project Personnel with required skills and commitments
Technical Tasks	Having necessary technical skills and adequate technology to perform tasks
Client Acceptance	Clients' perception to overall efficacy of the project
Monitoring and Feedback	Develop monitoring and feedback system to control the processes by which key personnel receive feedback, at each stage of the project implementation, and also introduce rewarding system
Communication	Establishing efficient communication route among the project organizations to exchange necessary information
Troubleshooting	Assessing the project risks accurately and make adequate plan to manage the risks

On the other hand, Belassi and Tukel (1996) accumulated project success factors from many scholars' articles then categorized them under project, organization, project manager, project team member and external environment as below:

Factors related to Project	*Factors related to Organization*	*Factors related to Project manager*	*Factors related to Project Team Member*	*Factors related to External environment*
• Size & value • Uniqueness of project activities • Density of a project • Life cycle • Urgency	• Top management support • Project organizational structure • Functional managers' support • Project champion	• Ability to delegate authority • Ability to tradeoff • Ability to coordinate • Perception of his role & responsibilities • Competence • Commitment	• Technical background • Communication skills • Trouble shooting • Commitment	• Political • Economical • Social • Weather condition

Moreover, in a study to find the critical success factor of large scale construction project Toor and Ogunlana (2008) grouped all the success factors under

Comprehension, Competence, Commitment and Communication. The factors under these headings are as below:

Comprehension	*Competence*	*Commitment*	*Communication*
• Requiring the use of facts and data to support actions at all levels of decision-making. • Clients requirements • Clients approval • Understanding project goals from client perspective	• Competent team member and project manager • Awarding bids to the right designers/contractors	• Effective project planning and control • Clearly defined goals and priorities of all stakeholders	• Regular client consultation • Responsiveness of client

2.2 Co-operation and Trust

Traditional construction practice encourages client and contractor to be adversarial to each other rather than building a relationship based on trust and co-operation, where as trust is seen and acknowledge as essential factor for building and maintaining healthy cooperation among the participants of the project that lead the project to success (Pinto et al, 2009).

Existence of cooperation among the project participants significantly improves the project performance in term of cost, time, quality, buildability, fitness-for-purpose and a whole range of other criteria (Bresnen and Marshall, 2000). Moreover, it changes the project processes from traditional win-lose and adversarial scenario to win-win situation, prevail an ambient working environment and better integration between the contractual partner, because then the objectives of the participants become complimentary to others even though they have separate goal (ibid).

On other hand presence of trust encourages the project parties to spontaneous interaction without thinking the hidden intention of other parties or risks of disclosing information (Kadefors, 2004) and this is essential to efficient and effective cooperation within the parties. Because inter-organizational cooperation could be induced through fear of sanctions or other coercive measures, could be contractual in nature or may offer incentives to be cooperative whereas existence of trust initiate positive approach between individuals or organization that ensure efficient and effective inter-organizational cooperation (Pinto el al 2009) which is essential to reach a better solution in the project.

According to Mayer el al (1995) the most important antecedents of trust can be categorized as the trustee's perceived ability, benevolence and integrity. Ability refers to skills, competences and characteristics relevant to the specific situation, while benevolence means the extent to which a trustee is believed to want to do good to the trustor which includes loyalty, receptivity and caring, and attachment between trustee and trustor aside from egocentric profit (Kadefors, 2004). Finally, integrity includes consistency, fairness, reliability, openness and general value congruence of the trustee (ibid). Moreover, fairness of decision process, perception of equity and, sensitivity and respectfulness in personal relation are also very important issues in trust as well as to maintain effective cooperation (ibid).

2.3 Clients' Role and Responsibilities

Clients' roles and responsibility simply means the measures or attempts clients have to take in order to attain their project requirements and goals. Construction project brings together many participants/actors to accomplish one goal though each participant has separated task to do but at the end it will compliment to the final outcomes. More or less the tasks of the project participants are interdependent that makes the projects a complex production process which is bounded by time, cost, quality and achieving the required functionality of the outcomes (Vennström, 2009). Construction clients bear the key position to influence the end product of the project by selecting appropriate procurement method and management process (Egan, 1998 cited in Vennström, 2009), since the clients have tremendous responsibilities to make the other parties realized accurately their needs but it is not the usual picture in real life practices (Kometa et. al, 1995).

Bennett (1985) found defining project objectives, outlining the project organization, selecting project team, forming the project governing method and building project culture are the five main roles that client need to take in construction projects (Cited in Kometa et. al, 1995). Later Kometa et. al. (1995) extracted from the views of contractors, consultants and clients that the certain responsibilities those the clients should take are as below:

Responsibilities	***Description***
Project Definition /Formulation	This refers to dialogue between the client organization and the consulting firm in which the client makes a reasonable effort to ensure that he/she defines/ formulates the project properly
Planning and design	This refers to the in-house planning and design that some clients undertake before approaching a consultant or contractor
Politics/social factors	This refers to fiscal policy, safety and employment regulations and community factors. The client should be aware of these factors and take precautions to accommodate them
Schedule urgency and schedule duration	Schedule urgency refers to clients instilling the required degree of urgency in their personnel, i.e. avoid rushing by all means but on the other hand discouraging delays. Schedule duration refers to the overall time allocated by the client for the practical completion of the project
Finance	The client should ensure a stable source of funding of the project. Funding of the project is the responsibility of the client
Legal agreement	This refers to the client's responsibility in ensuring that participants to the projects are committed to making the contract work rather than getting involved with litigations
Contracting	This refers to the client's knowledge of the available procurement routes and contract forms which are important for project success
Project implementation/ Management	It is the client's responsibility to determine how the project should be implemented /managed, which bears on the successful execution of the project
Human factors	This refers to the selection of the right people for the project

2.4 Clients' Capability

A number of researchers acknowledge that the term 'client' has been observed in holistic view and in vague way (Thomson, 2010; Hartmann et al., 2008). This, in some cases, could be one of the reasons for project failure which specifically arises from and due to confusion on who the client is (Thomson, 2010). So, It is worthy to describe the term first in order to throw light on what all clients have in common prior to take the next step. According to Hartmann et al., (2008) clients have two general characteristics; these are, firstly, clients are those who initiate, commission, pay and form a relation with actors who get the job done through a contract for construction project. Secondly, clients are those who decide and correspond to the requirements of the construction project for its proposed usage. In this case, the client has twofold representation; in one hand, represents for the owner of the facility who finances the project. On the other hand, stands for the end user who usually would use the facility, according to its intended purpose. However, clients symbolize a complex situation where different conflicting demands of and interest groups collide each other that are placed internal or external to its own environment (Hartmann et al., 2008).

However, to handle such a complex and conflicting demands of actors, clients such as public organizations need to build their capabilities to deliver the projects (Hartmann et al., 2008). Capability is defined as 'the knowledge residing in the routines of an organization to integrate and coordinate its specific resources, skills and competencies to perform various activities' (Zollo and Winter, 2002). Capabilities are developed through two main stream of knowledge a) tacit knowledge which is accumulated through experience and rooted in the organizations routines and b) explicit knowledge which can be expressed and written down to improve organizations routines and activities. Both knowledge types have a great role to play in improving the existing routines and replacing these routines through innovative approach. In the other way round, in the process of capability building companies are engaging in utilization of current capabilities and simultaneously looking for new practices (ibid). In the contrary, many public organizations, monopolies with no room for competition, intrinsically characterized with large bureaucratic structures which never welcome change and disruption, are highly hamper innovation (Hartmann et al., 2008). However, since public sector are highly engaging in construction and any innovation change, for instance, in procurement strategy or in stakeholder and suppliers relation, might have played major role in changing the performance of the industry.

2.4.1 Dynamic Capabilities through Continuous Improvement

The increase in complexity and speed of change of the business environment make organizations not only stick to compete on processes but rather on the capacity to continuously improve processes (Anand et al., 2009). This process improvement makes use of organizational learning to make changes in operating routines (ibid). In addition, the implementation of dynamic capabilities involves repeated cycle of organizational learning. Dynamic capability is defined as "a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness" (Zollo and Winter, 2002). The capacity to improve current process without interruption and learn new one is what is termed continuous improvement capability (Anand et al., 2009).

Learning new capability goes along with making use and exploring of new opportunities to create new business and practices to determine the applicability of the new improvement (Hartmann et al., 2010). The smooth transition of capabilities from

old to new practices to be applicable these practices should be highly related. In addition, however, in some cases, innovative ways of working set up by the project may contend or go against with the existing practices already situated within the organization (Hartmann et al., 2008). In relation to this, according to Hartmann et al., (2008) the knowledge gap between new and old practices have a lot to do with the likelihood of the resistance to new way of working. Moreover, the speed, rate, type and sources of innovation of these new practices are function of the rate of change in the environment and continuous oscillation of the change of this environment (Hartmann et al., 2008).

2.4.2 Project as a Tool for Building Clients' Capability

Projects have been used, especially in the beginning, as strategic experiment for stimulating innovation and learning in organization (Ayas and Zenius, 2001). This is due to their organization structure's suitability to responds quickly to a change of the environment and ease of creating new knowledge in short time. In addition, it assists to separate the new practice from practices of the status quo embedded in the organization. However, some researchers cited in Hartmann et al., (2010) argued that the separation of project from the main organization could hinder the sharing of knowledge and some lesson taken in the project with other organization units. In the process of accepting the new business practices the prerequisite is, to be flexible in adapting the organization structure and process and the accumulated knowledge in the long term (Hartmann et al., 2010). The top management has taken in account a capability building as strategic consideration so as to be able to utilize the new service by the organization which is achieved through structural changes and the creation of resources (ibid).

2.4.3 Contractual Capability

In service delivery process, contractual capability is referred to be successful management of contingencies taking place in transaction relationship of parties which makes it efficient and effective (Argyres and Mayer, 2007). In addition those clients who are contractually capable are able to speculate major hazards of opportunism and deal with them during the drafting, tendering and negotiating of contract document. However, practically, factors relation to drafting cost and asymmetric information make most contracts 'incomplete' (Zheng et al 2008). Moreover, contracts can only identify possible solution for foreseeable contingencies (Hartmann, 2010; Poppo and Zenger, 2002) and utmost some process for resolving unforeseeable outcome (Zheng et al 2008). In relation to these, incomplete contracts have gaps such as non-legally enforceable and poorly stipulated promises, intensions and conditions, which can easily be misinterpreted by court. However, according to Zheng et al (2008) in any supply arrangement contracts are legally bound and prevalent due to their intrinsic nature of incorporating institutional framework which acknowledges the right, duties and responsibility of parties and the goals, policies and strategies underlying the relationship is specified.

Incomplete contracts indeed offer less certainty with fewer legal safeguards for the contracting parties and limiting of accessibility is indicated, in non-legally executable elements, to render formal control (Zheng et al 2008). In addition, if contracts are put in away either to open for misinterpretation or are too inflexibly interpreted this may hamper any flexible and quick response to unforeseen actions and cause conflict and adversarial behaviour (Zheng et al 2008). In the contrary, researchers cited in (Zheng et al 2008) assert that gaps in the incomplete contract are filled when contingencies

exist, so that these create a means of exercising greater flexibility in the execution of supply arrangement. In addition, some researchers cited in Hartmann, (2010) noted that contracts have been seen as a sign of power yet working effectively for some conditions, but often open the door for conflict and defensive behaviour. Moreover, specifically, increasing transactional complexity creates ambiguity and uncertainty that a contract cannot withstand by its own (Argyres and Mayer, 2007). However, to alleviate such problems and to support the contractual capability public agencies (clients) need to address another complementary ways which promote problem solving and information exchange, relational mechanism such as trust and cognitive alignment (Hartmann, 2010; Poppo and Zenger, 2002).

2.4.4 Relational Capability

It has now been taken for granted that public agencies (clients) need to build their relational capability so as to fill the gaps found in contract. Relational capability referred to be making use of socially complex routines, and procedures and policies in inter organizational relationships (Hartmann,et al 2010). Organizations considered to be relational capable are devoting in, relation-specific aspects, exchange knowledge with each other, and integrate complementary yet on inadequate resources, and manage their relationships to achieve successful outcome (Hartmann, 2010). The relational viewpoint suggested that it can act as safeguard by its own more effectively, in some condition more efficient substitutes for contracts since parties are already analysis the overall cooperative relationship over time (Zheng et al 2008). In addition, the relational point of view provides more weight for trust and commitment to achieve mutually successful outcomes (Sarkat, 1998; Zheng et al., 2008). As a result relational governance approach is therefore, based upon social processes, like trust that promote norms of flexibility, shared aims and information exchange, which informally can protect against exchange hazards and facilitate the execution of commitment. Likewise, unforeseeable contingencies, particularly in long term relationship, may be tackled by a bilateral approach to problem solving which facilitate adaptations. Moreover, authors cited in Zheng et al (2008) more suggests that inter-organization relationship build up when the two parties develop activity links, resources ties and actor bonds.

Relational bonding measures to what extent the collaborating partners glued to each other, by means of formal and informal ties in their collaborative venture (Sarkat,et al 1998). This relational bonding assists the relationship to shield itself from disruptive forces and to upgrade parties' willingness to the next step which is long term strategic alliance. Sarkat et al (1998) further asserts the lack of relationship bonding reveals the relationship is short lived, fragile and incompatible. However, developing relationship makes use of considerable time and resources (Zheng et al 2008; Hartmann, 2010) in such a way to encourage normative context of shared values; this assist to upgrade the interaction of the organizations by creating common alignment of understanding of behavior (Hartmann, 2010). Moreover, the development and maintenance of relational governance include the network of social ties (Zheng et al 2008), however, excessive social ties may hinder from getting information and exploring opportunities beyond the network. Likewise, as the scale and scope of exchange increase, since repeat business and cultural homogeneity is less common, exchanges are difficult to maintain through long term relationship (Zheng et al 2008).

3 Method

Objective of a study is to understand the theories or events or behaviour, or to justify the relevancy of theories in the practical field. The objective of a study in project management field is to gather the knowledge that assists in management decision making, where validity of the study is very important. So, it is essential that the research has to be scientifically valid and reliable to accomplish the objective of this study i.e. clients' management practices for major projects in Sweden.

3.1 Research Design

To keep a study on the right track it is essential to design an appropriate framework or structure for the study. It determines and explains the method of collecting and analyzing the gathered information against the research questions. Cross-sectional, longitudinal, case study and comparative design are the types define by Bryman (2001). In a Cross sectional design, information are collected on different cases or objects at a specific time and they are verified afterward to see the patterns of association. Longitudinal design is an extended form of social survey. It is similar to cross-sectional design and it uses "self-administered questionnaire or structured-interviews". In the case study design, researchers conduct on single or multiple phenomena with an objective to create theory or to establish the validity of a theory. In comparative design, analysis and comparison are conducted between two or more contrasting cases or phenomena to extract a better understanding of social happenings.

This study consists of a detailed investigation within the major construction project management context. To accomplish the purpose of this study it requires detail understanding of organizational practices and exploring in depth issues in managing major projects which gets the opportunity in case study approach (Cassell and Symon, 2004). Flexibility in research design, question formulation and data collection are also required in this study to adapt to and probe area of the purpose that support in case study approach too (Robson, 2002 cited in Cassell and Symon, 2004).

Based on the above discussion it might say that case study approach is appropriate for this study that gives a better view to evaluate and understand the existing capabilities of the clients in managing major infrastructure construction project in Sweden.

3.2 Research Method

3.2.1 Qualitative Vs Quantitative

A research can be either qualitative or quantitative in nature. Subjectivity, a holistic view, a concern about validity, the analysis being close to the data gathered, the process being given great importance, the use of practical case studies, a uniqueness of the study, and interests in specific individuals (Bergström, 1994 cited in Behumi & Holten, 2004) are the area of differences between these two methods. Generally quantitative method handles statistical data and qualitative method is used it not meaningful to present the gathered information in number (Bryman, 2001).

Ghauri et. al. (1995) drew the characteristics of qualitative method in comparison with quantitative method as below:

- Rather than testing and verification, qualitative researches emphasis on understanding.

- Qualitative method focus on understanding from respondents' point of view.

- Qualitative approach is based on rational interpretation rather than any critical or logical approach.

- Observations and measurements are done in natural settings in qualitative approach, whereas controlled measurements are used in quantitative research.

- The method concerned to closeness to data and subjective "insider view".

- Any hypothetical tests does not include in this method, it is an "explorative orientation method".

- Qualitative method is process oriented and has a holistic perspective; on the other hand quantitative method is result oriented and is an analytical method.

- In qualitative research, generalization is made by comparison of properties and considering the contexts of individual organism.

The purpose of this study is not to justify or test any existing theory on major construction project management which is the focused area of the study rather it is to find out the status quo of the clients in this field. To perceive the real context this study it is important to understand the respondents' point of view and psychology. Moreover, closeness to the respondent is essential to get the inside view to the realities which might not get just by the words also from other factors such as body language etc. So, it is logical and relevant to use qualitative method to analyze and generalize the research data and findings. Moreover, no statistical procedure will be used in this study.

3.3 Sources of Data

3.3.1 Interviews

To collect the information for of this study Trafikverket and Vattenfall were chosen as client who constructs major projects in Sweden. In one side Trafikverket is responsible to build country's major infrastructure like roadways and railways, and on other side Vattenfall that produce power who construct different types of power stations. Although only three interviews were conducted in two companies which seem insufficient but all respondents in this purpose were experienced and high in hierarchy. A project leader and a project manager were interviewed from Trafikverket and from Vattenfall it was the head of integration management.

All the interviews were semi-structured and lengths were around of one hour each. The question were modified and added in consecutive interviews for getting a better view of the findings. Moreover, the questions were more to point of discussion rather than an ordinary question to describe the answer. The questions of the interviews were started from the project planning stages then gone through project briefing, project success factors, procurement, trust and collaboration, communication, risk management, and continuous improvement issues of a construction project.

To get a better outcome of this it would be better to include the other party's opinion like consultant and contractor organizations. Even though it was tried to reach the consultants and contractors who usually engage in constructing major project construction but no affirmative respond was received from them, and some of them did not respond even.

So, this study is based on just three interview conducted with Trafikverket and Vattenfall. Furthermore, the respondents were not quite open to share the inside

pictures of the organizational abilities and skills, and the interaction quality of the organization with other actors of the projects.

3.3.2 Literature

Different literature sources were cited to gather information related to this study. The literatures cited for this purpose were centred to the construction project success factors, trust in project management, relational and contractual capability of client etc. All the literatures cited in this paper were published in different journals for academic and professional use. Case studies, research papers, and essays published in various journals were used as well.

4 Findings

The information that gathered from the interviews has noted down in this chapter. These information have organized as the same order as the formulated questions i.e. project planning and briefing, project procurement practices, relational and contractual matters of project, in-house competency of client, change handling issues of project scope and contract documents, project debriefing, communication way, and clients' perceived factors to make a project succeed. Although the findings from the Trafikverket and Vattenfall are shown under separated headings but the aim of that is not to compare them. Except some similarities in procurement or relational or contractual issue, Trafikverket and Vattenfall's working ways are different, and it is usual since the organizations operate in different field. But in this study these organizations have considered as client rather than their operating sectors.

4.1 Company Background

4.1.1 Trafikverket

Trafikverket is the organization responsible for long term planning of all modes of traffic. Mission of this organization is developing community by building and managing infrastructure for transportation to ensure smooth, green and safe movement of the people. Making the transport facilities easier for passengers, road users and operators, support the development of the Swedish regions are the Motto of Trafikverket. This administration is responsible for the overall long-term infrastructure planning and the construction, operation and maintenance of state roads and railways. So, Trafikverket plays an important role to improve the functioning of the overall transport system (Trafikverket, 2011)

4.1.2 Vattenfall

Vattenfall is one of Europe's largest generators of electricity and the largest producer of heat. Its main products are electricity, heat and gas. In electricity and heat, Vattenfall works in all parts of the value chain: generation, distribution and sales and in gas, they are mainly active in sales. This company is also engaged in energy trading and lignite mining. More than 38,000 people are doing job in Vattenfall group. The Parent Company, Vattenfall AB, is 100%-owned by the Swedish state. Sweden, Germany and the Netherlands are the core market of this company, which is expanding their business in Belgium, Denmark, Finland, Poland and UK as well (Vattenfall, 2011).

4.2 Project Planning and Briefing

4.2.1 Trafikverket

Planning and preparation of an infrastructure project is the longest phase in the whole process. It takes up to 20 years to start the construction of the project. It starts with evaluating the demand for the infrastructure that includes getting the opinions of inhabitant of the region which is considered significantly. Although the government will decide whether the infrastructure to be grounded on or not, but inhabitants' opinion gets most priority, where as in Denmark this decisions mainly depend on government's wishes. According to the interviewee "…..in Denmark the process is short if they need infrastructure yes then done but in Sweden there are always a lot of steps, there are always a lot of decision along the way of the process……" Next stage is the route selection which includes choosing the corridor then lining up multiple

routes and finally choosing most feasible route for the project within the corridor. Here again the opinion of inhabitants crucial to finalize the route where they get three week time to complain against the decision. According to one interviewee "…When you make a railroad no one wants the railroad beside his home but everyone wants to go in city centre…" So, meeting and listening to the citizen had to be done to get the knowledge of different social aspects. There are regulations for roadways, railway and environment which are also very important to make decision in this purpose among them environmental laws is the toughest one.

Project planning and preparation phase is seen as like as funnel that narrowed down to end, as the interviewee said "…the process is like a funnel this first we choose the corridor and the second stage is choosing for the appropriate routes for the project and the third stage is choosing for the most feasible route of the projects to be built in the corridor…."

Trafikverket is mainly responsible to complete the tasks but they mainly depend on other consulting companies to do the job for them. To do the task properly, beside the selected companies from the market Trafikverket contribute their knowledge, experiences, and take the responsibility to communicate with the government time to time for taking the decisions.

To brief the project to other parties is forwarding the documents is primary medium in Trafikverket. All the information usually keeps in record from the beginning of the process i.e. from pre-study of the project. The volume of these documents is thin in the beginning then with the time it gets thicker. After every stage new information gets in the file then the accumulated information forward to the parties who engaged in next stage of the project. Beside these documents, Trafikverket makes a specification what's called the project plan by the interviewee which is later specify in details i.e. how and what going to be the outcome. This specification also forward to the parties to brief the project goal and outcome. Time is a crucial factor here. Trafikverket gets pressure from both Governmental and planners side to start the project on.

4.2.2 Vattenfall

Vattenfall has a clear process that is quit defined process elaborating the idea such as a new business to make a decision up on. Everybody in the company can come up with the new idea when the new project placed for discussion. Then group study department make sure that they have an overview of what they are doing against available resources. From that perspective decision making of the end committees look in to the different part of the business case and evaluate it and make whether it supports the strategy or not.

It's quite few that Vattenfall constructs new project because it needs huge investment rather they refurbish existing plants such as installing new turbine. However, the decision of constructing new plant or refurbishing existing plants depends on potential business benefits such as payback period, fuel price etc.

Politics can affect at all level of the decision. There are two main dimensions of the politics the first, the Swedish Government Vattenfall group and second, the Local authorities or local political situation where the project will build up. The later one is the important one than the previous, because it is essential to understand the local stream in politics and opinion, stakeholder demand to make a joint interest to build the project. Lot of personnel who are skilled in managing stakeholder communicates with

different stakeholders and local authorities. Even after getting these factors managed in post-election, situation could change. According to the interviewee "…..elections may be things changing 180 degree shift……"

Vattenfall has a defined direction to go in the project which is harmonic with their stipulated strategy. They have a defined process of running the project and also have a decision making process based of available information. Vattenfall is a specialized organization so, the entire competencies they need are not always available in the market. The projects they build such as gas fire power plant or nuclear power plant are always complex, so they have developed in house competencies to engaged the project more closely. However, mostly they do the refurbishment work in the existing plant thus only Vattenfall knows exact situation of the existing project more than others of market, since they have their previous documents and moreover currently they commission the plant. That is why; just by forwarding some pre-defined or specified documents and specifications they cannot brief their needs to other parties.

4.3 Clients Capability

4.3.1 Procurement

Procurement method is chosen according to a guide line and some sort of existing routines to follow which it is not always performed in specific way rather it is always a discussion point. The interviewees preferred to have some control on every process of the construction, however, simplest way could be to give all responsibilities to the contractors to do but it is claimed to be very expensive. But they often choose performance based contract, the reason why the interviewee explained, "...because we know how to do that and it provide more control to us as well as it is old habit..".

The other option is function based contract which is said to be, the client determine beforehand the type of project with specification to be delivered by the contractor. One of the interviewees explained, "...we simply say we need a road with this corridor with such curvature and width and that's very exciting! I believe in that, and then in the contract we have a freedom to choose solutions. But in this case, we still lose some control because we don't know what we are going to get...". So that unlike the performance based contract, function based contract is hard for the interviewee to know whether it is reasonably cheap or not.

The interviewee basis to determine type of procurement depends on what is to be done, level and basis of freedom in the contract or in the project. For instance, if the project does not have any freedom to perform then it is preferred performance based contract. Otherwise, if the project undertaken is complex which needs some sort of freedom such as constructing a tunnel then it is preferred to put in place a function based contract because it acquires to have a flexibility to choose among construction methods. In this case, the clients are able to utilize the contractors experience out of the process.

When you run a project you need to be flexible said the interviewee "....working with the same contractor can be one option but choosing the right contractor from the beginning by far the best one...".

4.3.2 Contractual Capabilities

In the implementation of the contract referring every event to have it in the contract is far from impossible. The interviewee said "..we do our best and getting better every time to put every possible events, in the contract but it is far from possible to have it

all...". Hence flexibility is the only immediate remedy to handle problem related to the gaps in the contract. More to the point, one of the interviewee explained, "...if you always push the contactor through the end of the hard line and if something happens that is not written in the contract then he is going to push you back...". It is evitable that there are always gaps in the contract and there is no perfect contract. Hence, the clients are willing to get better in improving the process of the contract. The interviewee said that "...in some cases even changing the contract if the contractors are not able to fulfil the new demands required..."

Apart from these, in most cases the clients try to solve the problem with the contractor by discussion so as to secure their mutual interest. The interview explained that "...if we push too hard to one side it will affect ourselves because as client it is our money...". However, one of the interviewee said, "...in some cases contactor tries to find gaps in the contract intentionally because trying to get profit and trying to earn money..". During misunderstanding the clients prefer to solve the problem before it gets bigger and in the lower level before it gets bigger. It is not common to go to court in one hand it cost money and in other hand it's very seldom that 100% favour gained for one party.

Flexibility in changing and improving the implementation of the contract has always risks. When something is changed in the contract there are chains of events followed. The interviewee cautioned "...it is better to sit down and discusses the chain of events before changing something.." he further explained "...you have to have carrot for the horse to make it walk so if the carrot is not big enough then you don't have to change because you don't know what would happen at the end. But if there is no risk with that change and the carrot is fair enough then the change can be applicable...". The clients are willing to get better in improving the process in the preparation of a contract documents and even change the contract if the parties are not able to fulfil the new demands required. However, one of the interviewee also said "...we are trying not to change contract document it always depends on the context of the project and the extent of the difference existed..". The only way to settle disagreement rise due to the gaps created in the contract is by discussion and creating good relation with the contractor. In some cases, having a good relation with the contractor even if the contract intension has created gap it is possible to find good ways that doesn't cost much for both parties.

4.3.3 Relational Capabilities

Trust and collaboration among the project parties are developed through communication. The parties discuss four times a year on how their relationship should goes on, this is done through a project coordinator. In order to solve flaws in a contract you have to have good relation with the contractor interviewee believed and said "....just looking at the contract you will never achieve your goal..." The contract must always be there to safe guard any actor from abusing the relationship. The interviewee added "...there are always people who try to fool you and if they succeed once they will try again..." However, in addition, he said "...having a good relation would make the time along with the project delightful otherwise there would definitely be fight every time so we have to have trust and I think someone has to start trusting...".

The party's share quite a lot of information that they believe assist them to work together but hardly sharing what they called their secrets. Lack of trust creates the scepticism of sharing the information specially the secrets because it is claimed to

hinder opportunism. However, clients are strengthening their ability in handling relationships to make sure not to face the situation.

The clients believed that trust is one of and the best worth taking means to create long term relationship. However, it might be easy to work only in one project but it is really difficult to maintain long term relation in the market. One of the interviewee said "..it is quite uncomfortable to trust someone that you don't know but that is the only way to get the job done..". Building trust perhaps cost some at least in the beginning the interviewee explained "...I have to show that my intensions are fair as a client and I don't have any intension to trick the contractors...". However, the consultant's representative added on his part that the issue of trust among party members may exist in theory when it comes to the ground it is hardly to say there is.

4.4 In House Competencies

In house competency is mentioned in conjunction with the client capability is that the former is to reveal the proportion of clients' embedded organizational skill and knowledge mobilized to undertake in the process of getting the project done. However, the later, the client's capability could mean for both the knowledge and skills that fulfilled from inside the client's organization which is the in-house competence, and from outside market such as consultancy firms.

4.4.1 Trafikverket

Trafikverket has project based organizational structure (more to add on the organization structure). The interviewee believed not to have every competency on board and he said 'we have in house competence for most critical functions and in addition we hire a consultant'. For instance, there are 50 geo- technicians 5 of them are from Trafikverket.

Interviewees' from both companies said after handing over projects, they try to gain new competencies from the past project to the ones for the future. According to the interviewees 'we write a report on the project which states the key factors of the project and what was good or bad in the previous project, however, the participants hardly read them'. Moreover, the interviewee said 'we meet once in a month and discuss good and bad experience with project managers and geo-technicians to spread knowledge and take some improvement areas'.

4.4.2 Vattenfall

Vattenfall AB has been restructuring its organizational structure from being decentralized to centralize. In this process it has been acquiring many companies for the last 10 years which have been running autonomously. Those companies which have been running by their own become a part of large company the transformation is made in order to be more efficient in all aspects. The interviewee is trying to address the question of flexibility comes along with the new centralized organizational structure. He said that 'flexibility still there in the centralized case from Vattenfall AB perspective because flexibility does mean that everybody is allowed to do whatever they want to do'. It could seem inflexible in the individuals' perspective and it could be for their feeling at least to start with'.

Vattenfall AB looks a project from all aspects such as commercial, political, social, quality and cost. It defines important improvement areas such as construction, stakeholder management, contract administration, risk management, and special units for project management competence development. The interviewee explained that we

are trying to get professionals in the project management side. Project management is a career path in Vattenfall AB and using standardize like IPMA way certified project managers. He added that 'what we have done before is just running a project, we don't differentiate what is line and project, and we used to mix that, now we are trying to make very clear'.

4.5 Change in Scope and Contract Documents, and Managing Risk

4.5.1 Trafikverket

Since the process is so long it is so often that changes occur in project scope and contract document, according to the interviewee "…….since the process is so long and what you take decision which was right at that time is turn out to be wrong…" For instant, the customer demand is not same as it was 10 years back, as the interviewee said "…if it is one lane that was needed 10 years ago in the project the customer may need 2 lane now…" It takes considerable time to make the correction of those. Beside the demand changing issues, changing in rules and regulation such as environmental requirement is another issue that cause the revising the project scope and contract documents.

Although Trafikverket tries to keep the contract document unchanged but depending on the project context i.e. how much difficulties they face in the project activities, sometime they change it, where time is considered as an essential factor, and when time is limited the new decision could leads them to wrong. However, if due to the change, the ultimate cost of the project goes down, then the reduced amount of money splits between Trafikverket and contractor. But whenever it increases the cost, Trafikverket had to take the responsibility.

In the sector of risk management Trafikverket is not good, as the interviewee said "….the risk management here in Trafikverket is not that much good and we are trying to be better…" They try to allocate the risks rationally among the participants. When any unwanted event occurs in the project they discuss with other parties and try to solve it jointly but written contract is the primary way to decide who will take responsibility. Though, Trafikverket tries to split the risks among all actors, but ultimately they pay for all the risk because Trafikverket is the only source from where contractors will get money.

4.5.2 Vattenfall

It is often that Vattenfall changes the design, though they try to avoid it. It is because of unforeseeable consequences of one event to other events they had to change the design of the project. Moreover to upgrade the existing capacity of the plant and to extend the plant's life time they change the scope of the project. However, since it takes long time to start commissioning from planning and designing, change in regulation i.e. implying new regulations, and inventing new technology and change in market condition by that time causes the project scope change, because the project have to be integrated with those.

Vattenfall allocate project risks rationally among the actors including investors in contracting phase. Usually in contract documents it specifies the roles and responsibilities of acting parties including Vattenfall.

4.6 Debriefing and Continuous Improvement

4.6.1 Trafikverket

The life span for the kind of projects they build is considered for 100, not for 1 or 2 years. So, it is difficult to let any new fashion of doing the construction job. Since, the project lasted for long time Trafikverket concerns about the safety of the project that is why just after getting proof of the innovative way then they allow it. Because in construction job, it is only one chance to build a thing, which is not like as car industry. In this case project budget is the dominating factor. However, Trafikverket evaluate their project experiences and performance in a regular basis through general meeting and questionnaire.

4.6.2 Vattenfall

The scenario of Vattenfall is almost same as Trafikverket in this issue. Projects are here more sophisticated, so if any unproven method applies and later it fails then it cost several hundred million Euros, it also could have other bad consequences. Because of that Vattenfall try to find proven technologies to install in power plant both from economic perspective and safety perspective. They also imply their previous experiences to improve working process. Moreover, to build vendors competency Vattenfall invest to educate and train the vendors' personnel including their own people.

4.7 Communication

Communication is very important and the interviewee believes that it needs to be decided upon "...what you do communicate and what you don't...". They have centralized communication abilities to make sure that they are using the competence of what they have in the right way. The interviewee explained, "...instead of the project manager trying to hire a communicator locally they should know that there are centralized but local that are spill out all part geographically that really have a professional knowledge how to handle those local stakeholders and make sure that there is a connection between the project manager and those people...".

When the interviewee expressed about the way of communication he said "...spoken words are better than written words however certain things has to be written...". He added that "...I prefer my contractors will phone me and discuss instead of writing letters and encourage them to call me to solve the problems together before it gets bigger....".

4.8 Project Success Factors and Criteria

4.8.1 Trafikverket

Time is seen as a very important factor for project success. In the early stage of the project it seems that estimated project duration is adequate to accomplish the project but later in later stage time always seems insufficient. Cost and risk management are also crucial factor in project success. Organization with mix of old people who have experiences and young people who have education also complementary to the project success. Understanding the motivators of the participating organizations as well as their employee, realizing their goals, courage to do the job right, top management support, freedom to make the decision and active communication are also significant

factors for project success. Time, cost and quality are considered the key criteria for evaluating the project success in Trafikverket.

4.8.2 Vattenfall

Here people are considered as the main factor to project success. According to the interviewee "*...you can have processes, tools, and strategies but if you have the wrong people in there it will fail anyway, but you can have the wrong processes with brilliant people you can get success.....*" The interviewee also mentioned that 70-75% of their project success bring by right project manager and right team member on the board.

Delivering the project safely, on time delivery of the project, project cost under estimated budget, fulfilling the required project specifications and fulfilling the project scopes are the five main criteria to evaluate a project whether it is successes or not in Vattenfall.

5 Discussion

5.1 Project Planning and Designing

From the finding of the research it is appeared that infrastructure construction takes long time from project planning to commissioning or operating the project. The characteristics of major infrastructure projects described by Yeo (1995) are dimensionally large with multiple components, human-activity oriented system, capacity for growth and stringent multiparty control system; so it co-relate with lot of factors associated with those like societal issues, citizens' demand, environmental issues etc. To gather all the essential data for the infrastructure it goes through the feasibility study in the beginning then goes to the project planning and preparation stage that could lead the project to a desired outcomes by making strategic long term decision. In Sweden, major portion of the whole project time pass in this stage, sometime it takes up to 20 years to start the construction work. Lot of dialogue between the authority and the inhabitants take place to know the actual requirements of the citizens, beside this geotechnical and environmental factors also evaluate. Usually clients hire professional experts to measure geotechnical and environmental data, so it does not take significant time. Though in some case it could be difficult to get actual geotechnical data such as for tunnel project, but for these types of project it is usual to consider contingency plan or put many risk factors.

Thus remaining task is managing inhabitants of that area, understanding their needs and opinion etc. that take greater portion of the time. Citizens' opinion plays a vital role in Sweden to make the decision for constructing infrastructure which means citizen could influence the decisions. In addition to that the function of local political stream is significant as well for that purpose, whereas in other neighbouring countries like Denmark government's wishes get maximum priority whether the project to build or not. Moreover, in this stage bureaucratic procedure to communicate between the citizen and the government for exchanging each other's' wishes and desires also elongate the duration. At the end, the total time length of planning stage of a project becomes extended that caused the unnecessary resources consumption. Clients' lack of knowledge in design management could be a reason here. Inability in stakeholder management skills could be the reason too here.

Different consulting companies are employed by the client and they mostly execute the studies for project planning and preparation. Although, with their experience and knowledge clients observe the consultants' activities but clients depend excessively to the consultant. Due to lack of in-depth knowledge of the project; and shortage of personnel could be the reasons behind it.

In the project briefing stage sending the accumulated document to other parties is consider as the primary medium to brief about the project to the parties. Mostly some prefix specification use in this purpose. To make other parties to understand the project goals, scopes and outcomes just by handing over a bunch of documents might be the cause of misrepresentation of project goal, scope and desired outcomes.

5.2 Contractual Capability through Flexibility

Contractual capability is referred to be successful management of contingencies in transactional relationships of parties (Argyres and Mayer, 2007). Hence it is taken for granted that public clients need to develop their contractual capability in order to make the relationship more efficient and effective. However, the intrinsic nature of

contract is the inability to comprise every possible event that could take place in the process of the project. From the findings it is also well confirmed the fact that it is evitable to have gaps in the contract and even thoroughly prepared contract document has gaps which are incomplete and can easily be misinterpreted and lead to conflict and adversarial relationship. In some instance, the other parties intentionally look for gaps in the contract to take advantage over the client unless the client is ready enough to think ahead of the intension plotted behind. So, clients should be able to find the means to manage the contingencies that faced along the way of the process of the construction projects.

On the other hand, as some of the researchers assert that the gaps in the incomplete contract could be sources of exercising flexibility when contingencies pop up (Zheng et al 2008). In relation to this, the reason to be flexible in implementing the contract is because the contract by itself cannot safe guard any of construction parties from losing or a gaining their benefits. As far as the findings are concerned about the issue one of the interviewee quoted ".....if the client push the contractor through the end of hard line in applying the contract then there would be time for the contractor to push the client back....". As it can be expected, if this relationship trend persist in the project process then surely things start to go in the wrong way eventually make the project a battlefield. Nonetheless, clients who are contractually capable are able to speculate opportunism and can negotiate (Zheng et al 2008) in the formulation of the contract agreement. In addition, in the same sense, clients who can negotiate need to have flexibility, in generating and discussing possible means to agree on, in exercising their contractual capability. However, the main question worth to rise is as to how flexible is a flexible in the process of applying the contract. However, the main question worth to rise is as to how flexible is a flexible in the process of applying the contract. Because, according to Zheng et al., (2008) the extent of flexibility in interpretation of the contract may hamper any flexible and quick response to unforeseen actions can cause conflict and adversarial behaviour. For the sake of understanding, it is proposed to limit range of flexibility based on the responses of the interviewees, these are in one end flexibility only in implementing the contract on the other end flexibility in changing the contract.

Any attempt to alter the contract needs some sort of precondition which should be fulfilled beforehand prior to taking action. One factor can be analysing the chain of events comes along with the change of the contract. In relation to it, the effects on future relation among the project parties and any gaps which could be created due to the change and its possible remedies. The other factor need to be scrutinized is the overall worthiness of the change, one of the interviewee quoted "...you have to have a carrot for the horse to make it walk....". This is to indicate the project parties especially the client should trade off the benefits and possible cost that can be paid for the change. But the next question would be how big the carrot is to determine the distance needed to be walked further. This metaphor shows that with little or no benefit no major change expected in the contract to take in action. In the same sense, to the extreme case, changing the contract is when the parties are not able to full fill the new demand required by the client. This case, however, needs some sort of assurance to develop trust and collaboration to bond the contract parties together. Having in account, the normal relation trend mostly seen among the project parties. Especially, for sake of the client, changing the contract for nothing in the expense of the clients' requirement seems to be illogical and erodes the clients' capability to keep its interest.

On the other end, flexibility in implementing the contract is worth enough to be embraced in order to smoothen the relationship among the project parties, hence, improves overall project performance. This is because the contract is taken as platform to support the interaction among the project parties (Hartmann et al., 2010) though unable to consist all possible intensions to create successful contractual relationship. Having taken in account this fact, unconsciously or on purpose it is merely possible to get the contract intensions to be misinterpreted by the project parties. So the issue of relationship come at this point, where the translation of the contract intension depends mostly on the true nature of project parties' interaction (ibid). In addition, according to the findings, contract seems to be obsolete where there is a good relation among contract parties and problems are settled down by discussion and agreement rather than referring the contract document. However, contracts need to be there to safeguard opportunism and to hinder abusive relationship. In addition, in case where the contract intensions clearly create a gap apparently a better way can be found by a good sense of collaboration that do not cost much for both sides. In order to do in such away the contractual parties have to be glued by trust among each other. Hence, trust is the pillar for any contractual parties to initiate and to work in collaborative and honesty manner.

5.3 Trust and Cooperation as Basis to Exercise Relational Capability

To put in practices the aspects of relation, trust is taken as a cornerstone as well as a motor to operate effectively. However, apparently what is found in the finding is that the contracting parties have trust which is based on scepticism and egocentric that seems to have no ground and which may only secure short lived relationships. This can be well illustrated in cases that the client are expecting from the other parties to be trusted first rather than developing mechanisms which enhance mutual cooperation. The client incline to make a statement that shows the client are always trustworthy which is not logical but the other contracting parties are still kept under surveillance by the client. However, trust shields the relationship from disruptive forces and assists to upgrade parties' willingness to the next step (Sarkat et al., 1998) which is long term strategic alliance. The sense of cooperation is rooted in seeking to have a long term relationship and at the same time trust creates positive approach for having effective cooperation. However, cooperation (Pinto et al., 2009) can be induced through fear of sanction and other coercive measures, but such cooperation is doubtful to secure the parties long lasting mutual interest and rather promote tension and suspicion on the relationship. On such cases parties are only motivated to cooperate on some ventures which are stated in the agreement but some can be overlooked though have the importance.

Hence, trust promotes norms of flexibility and shared aims and information exchange (Zheng et al., 2008). From the findings, the issue of information exchange found to be sceptical and both parties only exchange information which they think either don't affect their interest or on both that they think get benefited. This reveals that how the trust is based on egocentric ground that never take far to achieve the project objective. Paradoxically, as interviewees stated they desperately need to have a long term relation while having such sceptics. However, the contractual parties need to be farsighted so as to take the relationship to the higher level i.e. long term strategic alliance.

5.4 Interface between Relational and Contractual Capability

Hartmann, et al (2010) and Zheng et al (2008) in their research well confirmed so do the findings, that the contracts were unable to comprise all possible way of intensions to achieve successful contractual relationship. However, the incompleteness can be filled by relation based approach which the client should embrace so as to achieve the project objectives. Hence it can be argued that relationship which is reinforced by trust could be best substitutes for contracts. However, formal safeguards depicted in the contracts may assist relationship in more vulnerable events. On the other way round excessive dependency on contractual mechanisms, too detailed contract may lack enforcement capabilities (Zheng et al 2008), because it obstructs somehow the flexibility in application of the contract unless underpinned by relational mechanism to lose the tension. Indeed, relational governance which does not secure calculative self-interest can lead to blind trust which no longer lives in competitive environment. This reveals and it can be confirmed the fact that relational and contractual capabilities are complementary and substitutes to each other, in isolation both never stand by their own. At this time it can be described that both are interdependent and one makes the other perfect for usage. So that some authors assert that mutual use of relational and contractual mechanism give rise more efficient outcome than use them separately.

5.5 Change and Risk Management

Lot of factors like end user demand, environmental law, road and railway regulations, local political stream, other technical requirements etc. are very important to plan and design an infrastructure project. These factors are dynamic rather than static. Since, infrastructure construction project take long time from its planning stage to bring the project in service, in this long duration while the project works are in process to cope up with changed demands and requirements that in turn brings change in project scope and contract in that association lot of risks induced to the project. So, it is very important to statue change handling procedure in construction contract. Because major sources of conflict in construction are contractors' claims for additional payments for work resulting from changes, errors and omissions in the contract documents (Kadefors, 2004).

In the case risk management, other parties get the opportunities over the clients. Although client organizations try to allocate the risks rationally but at the end they are taking all the responsibilities for the risk by compensating other parties. Two reasons could have behind it, firstly due to lack clarification in the contract documents about risk allocation that makes other parties to ride on them. Secondly, clients might not have capability to control the quality of other parties' like consultants' tasks, that put them in trouble later in the project phase with other actors in the end clients pay for that.

5.6 Learning and Improvement

To obtain better quality and process in a project, learning and improvement is an important factor. Although learning and improvement is said important as well by the client organizations but in implementation of this concept it seems that they are not quite convinced, because cost is considered as dominating issue. Client organizations do not allow new way technology for accomplishing task without having the

experience which might be a cause to discourage the innovation, where clients hold prominent position to encourage and implement the innovation in construction project (Hartmann et al, 2008). However, this study is not to compare the competencies and or capabilities between Trafikverket and Vattenfall. But Vattenfall is quite ahead as a client to gain and implement new knowledge for improving project outcomes. For being a limited Vattenfall have the thrust to push up its business benefits, and this might be a reason to force them to improve the project processes, which is not the case in Trafikverket.

5.7 Project Success Matters

Project factors are the potential elements that goes together to guide the project for being successful, on the other side success criteria are the measuring features to evaluate whether the project succeed or not. From the result it seems that the distinction between the term success factor and success criteria is not clear to the client. However, it practice clients still consider time, cost and quality as the project success criteria, whereas scholars like Winch et al. (1998) found it problematic in different aspect to measure a project success by these criteria.

Although client mentioned that they consider understanding other party's interest, employee motivation, top management support, employee latitude, team consist of experienced and educated personnel, communication and competent employee as project success factor, but in reality to how do they implement these, is a matter of concern. Moreover, client's relationship status with other parties is very important for effecting presence of these factors, where trust is the core element (Pinto el al., 2009), because presence of trust encourage people to constructive interaction without pondering hidden motives of participating actors (Kadefors, 2004). However, some more factors like appropriate project plan, active monitoring and feedback, risk management etc. are important as well to be considered by the clients.

6 Conclusion and Recommendation

Construction industry is the most complex industry due to its numerous interdependent tasks (Dubois and Gadde, 2002). To make whole process smooth and effective clients need to play an important role to get the desired outcomes of the project but in practice, clients inabilities are observed in management skill and relational aspects (Winch, 2010). Moreover, in current trend clients evaluate consultants and contractors, while clients themselves are seldom assessed (Kometa el al., 1996).

Now-a-days, the involvement of the private sector in construction industry has been immensely increasing. This is rather aggravated by the managerial and technical complexity of the infrastructure projects. This is definitely a waking alarm for public agencies to build their all rounded capability especially their contractual and relational capabilities to manage the major infrastructure projects that are undertaken. As a result, they are able to cope with the changing and competitive construction market. This can be done through continues improvement and innovation that introduce new and better way doing things. In addition, clients can also exercise their capability on the current practice in efficient and effective manner by being flexible towards the implementation of the contract.

Apparently both public agencies under question i.e. Trafikverket and Vattenfall AB are so suspicious over opportunism and this can easily be revealed by the reluctance of sharing valuable information. This could obviously have its own impact on the performance of the overall project and it can cost more to the client. This comes due to lack of trust among the contracting parties, especially the client. Hence, the effects of not developing trust is twofold 1) relational capability is not well exercised and 2) the relational capability is flawed so the contractual capability is not well complimented. Indeed the contract documents have always gaps which mean that emergent needs and requirement that come during the project execution cannot be covered. Hence, there is a need to rely on relational aspects which is true based on trust.

Therefore, the contracting parties should find and understand on common values and interests in advance hence can pave the way to create better relationship. And through time, going further to develop common understanding step by step lead to find factors that make the parties relationally bonded by means of different ties in their collaborative venture. The relational bonding is further developed to create trust among parties. These steps should be made so as to make sure that the trust is based on mutual interest and collaboration. Also, it should make it easier to point out and hinder egocentric and opportunistic behaviour of contracting parties.

To upgrade the contractual capability and at the same time to safeguard the relational capability of the clients, the contract documents have to be written well, and forthcoming events which could be detrimental to the relation between the parties should clarify. The process of preparing the contract should be contextually supported i.e. it has to take into consideration the project type, complexity and its nature. As a result, it can assist the client to catch foreseeable contingencies and become basis for understanding for contract parties to come to consensus in the process of resolving some unforeseeable events.

Eventually clients' role is important in guiding a project to success in every aspect. That’s why; clients need to perform their responsibilities efficiently in different

project stages. To perform the roles efficiently clients should build up their capability. Trafikverket and Vattenfall which are taken as client in this study should also improve their competencies to perform better service to end user. To shorten the length planning phase design management and stakeholder management are two potential area clients should look at to improve. In addition to that insufficient number of competent employee in the organization is also a problem in the client organizations which hinder for the clients to be engaged in the project activities in depth, so they should have more and competent employee.

Project budget is consider as a constraint to allow the innovation or in embracing innovative solution for task to the clients, moreover competitive tendering procedure does not ensure to reward same contractor in the following projects too. So, it might not be worthy for the clients to invest in this purpose. Long term partnering with the contractor might be the appropriate solution here for the client to invest for innovating and developing the ways of doing project tasks.

Incompleteness in contract is a known matter in construction contract too, which brings lot of change issues including project scope in later phases of project. Therefore, change handling process should clarify in the contract document to reduce client-contractor conflicts in the project which will also reduce the project uncertainties. In the same time the contract have to be flexible enough to do the adjustments along the project stages.

Therefore, future research is recommended to consolidate this research by investigating deeply through thoroughly collected data from the client, contractors and consultants to get a better view of management practices of the client on major construction projects. In addition, it is highly recommended to get focused on the effect of procurement type chosen on the management practice of the clients more in to the focus of exercising contractual and relational capabilities.

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